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Railway Revenue, Interest Charges, and Wages

THE railway unions, in their endeavours to secure higher wage rates for their members, are being forced to face some of the inevitable consequences of negotiating with an industry the costs of which already exceed its revenues. In their endeavours to overcome this disability for their own purposes, they are being driven to making proposals which are tantamount merely to placing the burden on other sections of the community. In the current issue of *The Railway Review*, the organ of the National Union of Railwaymen, the principal article is devoted to the argument that the Treasury should pay the interest charges on Transport Stock. This would remove £40 million a year from the costs which the British Transport Commission has to bear and would, in the words of the article, give the railway trade unionists "fair and equal opportunities of negotiating fair and reasonable rates and conditions without the fear that the results of the balance sheet are exhibited behind the chair of the leader of the management's side." Stangely enough, the same article purports to refuse advocacy of a State subsidy, on the grounds that this generally is a policy "which can only put off the evid day and oft-time leads to efficiency." There seems to be some muddled thinking here, for the assumption by the Treasury of the liability to meet £40 million of interest charges would be just as much a subsidy as paying that, or any other, sum to the British Transport Commission to meet an increase in wages, to enable it to buy rolling stock or for any other purpose. The author of the article is concerned because he feels, quite rightly, that transport is at a disadvantage as compared with such other nationalised industries as mining, gas and electricity, each of which has a greater monopoly in its own sphere, and each of which can increase its prices with less fear of losing custom than can the railways.

Increasing Cost of Railway Materials

LAST year, about £110 million was spent by British Railways on fuel, rolling stock, materials, and stores, while the value of stock carried amounted to over £43 million at the end of the year. Some idea of the ways in which this money is spent is given in a recent issue of the *British Railways Magazine* which shows also how much more the railways have to pay for materials today than before the war. The average price of coal and coke, more than 15,000,000 tons of which were purchased last year, rose from 17s. 6d. to 49s. 6d. a ton, while the price of timber has risen by 350 per cent. Last year, some 12,000,000 cu. ft. of timber was bought for permanent way work, and purchases of timber for general use totalled 16,000,000 cu. ft. for the twelve months. There are signs, moreover, that prices will go higher still. During the second half of 1949 and the first six months of the current year the increase has been very marked. The cost of petrol as a result of an increase of 9¾d. a gal. has risen by £500,000 and the imposition of purchase tax on commercial road vehicles will cost another £450,000 a year.

British Railways Research Department

ACTING on the recommendation of a committee of the British Transport Commission set up in 1948 under the chairmanship of Sir William Stanier the Railway Executive has decided to integrate the research facilities of the Regions into one department. This will come into operation on January 1 next. From next year, therefore, there will be a new Research Department of British Railways acting as a single unit, controlled by a Director of Research directly responsible to Sir Eustace Missenden, Chairman of the Railway Executive. There will be seven divisions in the department with a superintendent in charge of each. Divisions will cover chemistry, engineering, metallurgy, physics, textiles, protective coatings, and operational research, with the chemical laboratories continuing with Regional work. Major research of a chemical nature, however, will be allocated to the laboratory most suitable for the work. The headquarters for operational research will be in London and the remaining divisions will be at Derby. There will also be a subsidiary engineering laboratory at Ashford. Already the appointment has been announced of Mr. T. M. Herbert, as Director of Research, together with that of Mr. E. Morgan as Assistant Director, and other appointments are given in our personal pages this week.

U.S.A. Railway Situation Reviewed

ELSEWHERE in this issue we print the last of a series of eight articles summarising the lengthy evidence submitted on behalf of the Association of American Railroads to the Senate Committee on Interstate & Foreign Commerce, which is making an exhaustive study of domestic transport. Taken together, the statements of the A.A.R. spokesmen give a clear conspectus of the railway situation in the States. They emphasised the unfair treatment meted out to the railways since other modes of transport came to the front. The newcomers in the transport field have been developed largely at the expense of the general taxpayers, including the railway companies. The Government has subsidised road, water, and air carriers indiscriminately, instead of keeping an even balance be-

tween all forms of transport. The enquiry undertaken by the Senate Committee is a sign that the authorities in Washington sense defects in the existing transport structure. The A.A.R. has made out a strong case for a revision of the present regulatory arrangements and the report of the Senate Committee will be awaited with interest, as it may have a decisive influence on the future of the U.S.A. railways—by far the largest railway system left in private ownership.

Corringham Light Railway Changes Hands

ALTHOUGH the 2¾-mile standard-gauge light railway between Corringham and Coryton, in Essex, is owned by a separate company called the Corringham Light Railway Company (incorporated on July 10, 1899), the shares have always been held by the current owner of the works which the line serves. It was built primarily to provide transport for workmen between the old-established villages of Corringham and Fobbing and the new explosives factory of Kynoch Limited at what was then called Kynochtown, but is now Coryton. Goods traffic was first carried on January 1, 1901, and passenger on June 29, 1901. During the 1914 war, thousands of tons of explosives and some 10,000 passengers a day were conveyed. In 1921 the Kynochtown works were taken over by Cory Bros. & Co. Ltd. and the railway shares changed hands at the same time. There is a physical connection between the light railway and a long siding from the Thames Haven branch of the former London, Tilbury & Southend Railway (afterwards L.M.S.R., but now Eastern Region). From 1901 the main-line railway had powers for the compulsory purchase of the light railway, but never exercised them. Now, as a result of the industrial re-organisation whereby the works have been acquired by the Vacuum Oil Co. Ltd., the ownership of the railway passed to that company as from September 1, 1950.

Corringham Railway Rehabilitation

UNDER its new ownership, the Corringham Light Railway is to lose those quaint characteristics which have attracted the railway enthusiast for many years. The line is to be re-sleepered and ballasted; it will be extended to the site of the new refinery plant; and sidings are to be rebuilt and the whole line modernised. This work has been given high priority, and reconstruction begins this month (December). The railway will then carry construction materials and plant up to the site of the refinery, and the efficiency of the line will be increased greatly. New equipment includes diesel locomotives, which are to replace the two 0-6-0 saddle-tank steam locomotives with outside cylinders that were built by the Avonside Engine Co. Ltd. in 1915 and 1917. Incidentally, the original engine, *Kynite*, an 0-4-2 side tank built by Kerr, Stuart & Co., still survives as a rusted derelict. The normal passenger stock is an old four-wheel former L.T. & S.R. coach built in 1876. There is no carriage lighting, and, on winter evenings, the driver segregates his passengers, by placing ladies at one end and men at the other.

Strengthening a Southern Viaduct

AN interesting strengthening operation is being carried out by the Southern Region at Hurstbourne between Basingstoke and Andover, where a nine-arch viaduct, almost a century old, is undergoing repair. The main brick arch spans of the structure are still sound, but the five spandril arches supporting the chalk filling and ballasted track have become weak and are being demolished. To avoid extra weight at a height of up to 65 ft. above the ground, which was considered undesirable, it was decided not to replace entirely with reinforced concrete, but to fill the spandril cavities with a lightweight concrete, lay a 9 in. reinforced concrete slab immediately below track level, and lower the tracks up to two feet, necessitating regrading of the approaches, which fall from east and west. Non-token single-line working over the viaduct on the down road has been introduced, under control of Hurstbourne signal box, while the up side of the structure, from which the metals and roadbed have been removed, is being taken in hand. Later, the single line will be slewed on to the new up line formation, to enable the other half of the viaduct to be tackled.

Longer Trains Instead of Double-Deckers

DURING the past twelve months the Railway Executive has carried out intensive trials of the double-deck train introduced on the Eastern Section electrified lines of the Southern Region as a possible alternative to longer trains. The conclusion reached is that the double-deck train does not offer a satisfactory long-term solution, and that public interest and operating efficiency will be better served by running longer trains of ten cars instead of eight cars of normal type, though of modern commodious design. Seating capacity of the experimental eight-car train is 1,016 passengers, as compared with 772 in an ordinary train of eight cars and 945 in the ten-car trains of new design, but this advantage is more than outweighed by slower working owing to the time required to entrain and detrain. Double-deck stock also suffers from certain physical disadvantages, such as less cubic capacity per passenger and smaller seats, and, because of the small clearances within bridges and tunnels, it is difficult within the limits of the loading gauge to provide adequate ventilation to the upper deck. Moreover, double-deck stock can be used only on a limited number of sections. Plans are now being pressed forward for the provision of ten-car trains for peak-hour service on certain suburban routes. This will require the construction of 66 new two-car sets and the modernisation of 132 four-car trains. Lengthening of platforms at many suburban stations will be required as well as major alterations at Cannon Street Station.

Festival of Britain Train Services

FIVE new expresses known collectively as Festival of Britain trains will come into service during the summer of 1951 when large numbers of visitors are expected to arrive from the U.S.A. These trains, which are enumerated elsewhere in this issue, will carry names related to the routes on which they will work, and they will be formed of the first of the new British Railways standard dining cars and corridor coaches which are being built in railway workshops this winter. Routes for these trains have been specially selected with a view to showing them in as many parts of the country as possible and at the same time to link London with other cities and towns in which the civic authorities are making arrangements to hold industrial exhibitions and art displays. During the period of the Festival the "Royal Scot" and the "Norfolkman" will also be made up of the new stock and a modernised "Golden Arrow" including new Pullman cars will operate between London and Dover.

The Occupation Crossing Problem

THE accident at the Boarer's Manor Way occupation level-crossing on April 24, 1950, when a lorry was struck by an electric train, resulting in serious injuries to three adults and fatal injuries to a child, has once again given prominence to the question of growing danger at many of these crossings. This danger has arisen out of the great changes that have occurred in road, and sometimes rail, traffic, in the course of time. A summary of Colonel R. J. Walker's report on the case appears elsewhere in this issue and it will be seen that this crossing has a particularly bad record and gives rise to a good deal of anxiety among the motormen who have to drive over it. The nature of the road traffic, which comes from a gipsy encampment, in any case makes it impossible to keep the gates locked, with so many persons involved, many of them having little sense of responsibility in such a matter. As a result a wide field is open to carelessness which may lead to serious results and Colonel Walker recommends that proper gates and a gatekeeper should be arranged for. The result of the report by the British Transport Commission on the question, referred to by him, will be awaited with considerable interest.

Locomotives for Victorian Government Railways

THE North British Locomotive Co. Ltd., Glasgow, is building at its Hyde Park Works 50 "N" class locomotives for the Victorian Government Railways. In view of the probability of the unification of the Australian gauge to 4 ft. 8½ in., referred to in our issue of March 17, 1950, the locomotives, although being built for operating on the 5 ft. 3 in. gauge are designed to be capable of conversion to 4 ft. 8½ in. gauge. The locomotives, which are fully described elsewhere in this issue, are of plate-frame construction, well stayed throughout, and fitted with cylinders 20 in. dia. × 26 in. stroke. Steam distribution is effected by 10 in. dia. piston valves actuated by Walschaerts valve gear. The firebox is of Belpaire design with a steel inner box of all-welded construction, the combustion chamber incorporates Nicholson thermic syphons, two brick arch tubes, and Ajax automatic fire-doors. There is a speed recorder, and staff exchange apparatus is fitted to the side of the cab. On completion, engines are being shipped fully erected to Melbourne.

Railway Charges, Efficiency, and Integration

NO charges scheme is likely to be adopted, in the opinion of Sir William Wood, Member of the British Transport Commission (expressed in his paper read recently to the Liverpool Economic & Statistical Society), which will provide for the conveyance of all goods at like rates by road, canal, and rail. Each of these three forms of inland transport has advantages over the other for some services and disadvantages for others. The cost of conveyance on a railway consists of two main elements, fixed and variable. He had spent some time 25 years ago on this point, and came to the opinion, confirmed by what he found in other countries, that in normal conditions the two were roundly in the ratio 70:30, assuming that train services and so on varied concurrently with traffic volume. With a 20 per cent. increase of work the ratio was 70:36, and with a 20 per cent. decrease 70:24: variations of the cost per unit in the ratio 100:94:106. In present conditions, compared with 25 years ago, the fixed portion has fallen because much of it is the heavy interest cost on the capital expenditure for land and major works, which represented about four-fifths of the purely railway capital expenditure.

Where traffic is expanding rapidly, requiring many new works, some costs may appear variable over a short period, which disguises the fixed nature of the costs of many of the new works. No one, stated Sir William, claims that all railway costs are fixed for all time but the experience of the Southern Railway in 1924-38, when, with electrification, train-miles increased rapidly without a corresponding increase in expenditure on track, illustrates that "maintenance of way and works" expenditure has a large element of fixed costs. In Britain much land for railways had already been developed when acquired, and this important group of fixed costs had to be paid for at high prices, together with payments for disturbance and assumed deterioration of adjacent property. From the point of view of the B.T.C., which has to pay interest on, and redeem the capital involved over a period of years, it is a distinct cost which is bound to affect the level of charges. The more traffic carried, the easier it is to spread these and other fixed costs, as conditions during the war showed. Then, the railways carried the greatest volume of traffic in their history, the peak freight traffic in ton-miles was 50 per cent. greater than in 1938 and the passenger-miles were 80 per cent. greater, but the freight engine-hours increased by only 33 per cent. and the passenger-engine hours decreased 16 per cent.

The purpose of integration is not to force consumers to use out-moded methods, and to refer to railways as "out-moded" or even to speak without reservations of "declining traffics" is to ignore facts. Under integration Sir William Wood assumes that short-distance general merchandise will usually be conveyed by road, middle-distance traffic by rail or road, and long-distance traffic by rail, but there will be exceptions such as indivisible loads, siding-to-siding traffic, and traffic where handling risks are great, and other factors such as back loading.

Outlining improvements now being effected by the railway, he gives a timely warning regarding the use of efficiency statistics, which may lead to inferior service resulting in "good" efficiency figures, and a reminder of the limitations in this country on the use of high-capacity wagons, though he advocates greater use of the latter for coal movement. He refers briefly to inter-Regional working adjustments and to electrification and dieselisation schemes held up for financial reasons. Sir William Wood also points out the perennial nature of both passenger and (some) goods services, which do not wait for paying loads, and the extent to which the war and the restriction on capital expenditure have hindered maintenance and development.

Answering various criticisms of the railways' efficiency, Sir William Wood draws attention to the fall since nationalisation in the number of staff, and to the lower percentage (60) than is generally realised of working expenditure on staff, and adds that in railway factories costs are appreciably lower than those of outside firms. "The short fact is" he states "that what the railways buy has increased in price much more than what they sell," and he gives details of augmented costs of materials. Regarding an accusation that the railways use primitive freight-handling methods, he queries the economic soundness of universal mechanical handling, and says *"Tu quoque"* to rail users such as certain coal merchants. He makes some trenchant remarks on the closing of branch lines. His reply to allegations of frustration of the Railway Executive by undue centralisation and interference by the B.T.C. is that with the rationing of expenditure for capital, renewal, and even some maintenance expenditure, it is necessary for the Commission to ration its allotments between each of the Executives. Cuts have been necessary in proposals which exceeded the whole, but even then the items and expenditure to be cut were agreed with the Executives.

Standardisation of methods and appliances is always distasteful to the conservatively minded, states Sir William Wood. How long consolidation will take is not known but consolidation of standards, principles, and methods is a pre-requisite to decentralisation. This applies alike to engineering, operating, and commercial practices, and particularly to a public body which must give like treatment to all its staff and to all its customers.

Railway and Resorts Combined Publicity

EACH of the large pre-grouping railways contributed to the development of holiday resort publicity. The London & North Western pioneered in postcards of trains and places served, the North Eastern originated advertisements in newspapers, and the Great Central introduced railway posters, of which the Great Northern issued the first true pictorial variety, with Hassell's famous "Skegness is so Bracing."

These efforts had no official backing from holiday resorts. It was the London & South Western which took the first step towards co-operation between railways and resorts when in 1913, Sir (then Mr.) Herbert Walker unified all advertising in one department, under Mr. F. V. Milton. One of Mr. Milton's first actions was to launch a scheme jointly with the Great Northern, whereby South Coast resorts were induced to display photographs and literature in G.N.R. offices in the Midlands and North. Bournemouth—owing its rise chiefly to the railway—was the first to respond.

On November 29 last, in a lecture, entitled "Joint Railway & Resort Advertising," to the Southern Region Lecture & Debating Society, Mr. C. Grasemann, who, as announced elsewhere in this issue, is shortly retiring from the position of Public Relations & Publicity Officer of the Southern Region, dealt with many interesting aspects of the collaboration in advertising between the railways, and the resorts which they serve. During his long term of office, Mr. Grasemann has striven with conspicuous success to

achieve the harmony which now prevails in their joint publicity, a venture which he termed "chasing shadows," as its results were elusive and imponderable.

The three chief co-operative efforts of the railways and resorts are posters, folders, and press advertisements. Each is important; the folder is the cheapest, pro-rata, followed by the poster, for which, of course, the railway provides free space—usually the best sites—on the stations. The poster is broadly divisible into two classes—the "bathing belle" and the scenic. With the first, the lettering must "tell," in the absence of a recognisable landscape. In a speech to the Publicity Club of London in 1931, Mr. Grasemann said that the Southern Railway was then spending 80 per cent. of its appropriation on press advertisements, 10 per cent. on posters, and 10 per cent. on folders, posters, and handbills. In *The Railway Gazette* of October 2, 1936, we reported that the L.M.S.R. had spent more than £2,500 on advertising North Wales in newspapers, with gratifying results, as more than 70 per cent. of excursionists questioned said that they had learned of the facilities in their papers. Now, according to Mr. Grasemann, the railways and resorts spend two-thirds of their joint advertising allocation in the press, and the remainder on folders and posters.

Interesting points were advanced by the publicity officers of Blackpool, Brighton, Bournemouth, and Worthing, who also spoke. As early as 1879, Blackpool was authorised to levy a penny rate for advertising, but not until recent years were seaside towns able to levy such rates without irksome restrictions on the ways in which they could advertise. These restrictions were particularly hard on the smaller resorts, and joint publicity with the railways became of the greatest assistance to them.

Named trains are good publicity for both railways and resorts. Long-distance trains are beneficial from the viewpoint of both, as they convey travellers who pay more in fares and popularise in their distant home towns the resort which they visit. British Railways now put up posters much farther afield than before, in an endeavour to attract the long-distance traveller.

Cleaner Trains

DIRTINESS of passenger vehicles, apart from its intrinsic evils, is of such importance in relations with the public that it is a constant preoccupation of the Railway Executive. Cleaning measures now taken by British Railways include mechanical washing plants and vacuum cleaning of carriage interiors. As far as necessarily intensive coach workings and a staff depleted by 10 per cent. allow, no opportunity of exterior or interior cleaning is lost. London suburban train sets, for example, are swept and dusted before going into service in the morning and swept around occasionally at turn-round points; coachwork and windows are washed on alternate days, floors every third day, and inside paintwork every five or six weeks, whilst interiors are vacuum-cleaned every three weeks. On over 300 long-distance services, travelling cleaners sweep out compartments and corridors and give particular attention to lavatories. Longer turn-round time, the result of making good the present deficiency of 2,000 coaches, as by the building of the new, standard coaches described in our last week's issue, and scrapping of old vehicles, will further facilitate cleaning.

Without under-stating the problem, it can be said to be by no means new—(it was periodically raised in the press long before the war)—and often to be exaggerated. Old coaching stock, however clean, comfortable, and structurally sound, is bound to look shabby in juxtaposition to new. A distinction moreover must be made between the really dirty vehicle, which has not been cleaned for an unduly long period, and one which disgusts the entraining passenger who finds it after a few hours in service grimy or strewn with refuse.

Shortage of stock means quick turn-round, and it would be unreasonable to expect stock on even main-line journeys such as between Victoria and Brighton to be swept out after every trip. Nor, in relation to journey times, do most road passenger vehicles receive more attention: they are usually, after a short trip, equally littered, even if they escape the grime which is almost (but not quite) inseparable from steam traction. It is largely a question of the public fouling its own nest. Those who indiscriminately scatter cigarette ends, paper, and food refuse amid the loveliest scenery in Britain, and in buses and trains, are not a small minority, however many of their fellows they may annoy. To tidy up after them adequately would be enormously costly in manpower. In addition, there is the thoughtlessness of travellers who soil upholstery with their muddy shoes, and leave windows open for smuts to enter. If passenger stock in Holland and Scandinavia is cleaner than in this country, this is largely because of the tidier habits of the travelling public in those countries.

Even so, dirt in trains arouses the indignation of the press and of a section of the public to a greater extent than does the same dirt in parks or natural beauty spots, because it is an obvious stick with which to beat the railway dog. Before the war the company railways were blamed for it: now it is the nationalised system. Much of this criticism is politically tendentious, and there are others always glad to blame the railways. The more reasonable traveller, however, bearing in mind the difficulties with which British Railways have to contend, the habits of the travelling public, the generally lowered standards of maintenance (not only on railways) since the war, and what is being done by the railways, will realise that the situation, in so far as it can be remedied, is not as bad as so often represented, and will improve.

Actuaries in the Transport Industry

THE proportion of actuaries in this country employed in industry (including nationalised industry) is low, even if it is increasing. (It is now 7 per cent. of Active Fellows of the Institute of Actuaries, against 3 per cent. in 1938). Only four are directly employed in nationalised transport, in the London Transport Executive. One of them, Mr. F. A. A. Menzler, who is Chief Development & Research Officer, London Transport Executive, made out a good case for employment on a wider basis of actuaries in industry, commerce, and the public service generally, in his Presidential address to the Institute of Actuaries on October 23.

Apart from the duties in insurance usually associated with actuaries, the interpretation of statistical data and the application of statistical methods suggest themselves as work for which they are eminently fitted, and herein there is ample scope in all branches of transport. Mr. Menzler however maintains that their training, even if it seems unduly specialised, with its bias towards insurance problems, is, like a university honours course, of the utmost value in industry, for it engenders habits of concentration and critical analysis of problems generally, besides the more specialised ability to handle and interpret statistics. The size of present-day public utilities, he suggests, necessitates the replacement of personal oversight by "an impersonal generalised scrutiny, rendered possible by statistics," and here again the actuary can be of the utmost assistance. Long-term planning is another feature of large concerns, and Mr. Menzler draws attention to the importance, in the preparation of preliminary studies and estimates, and more particularly of those concerned with the financial appraisement of alternative development policies, of what he calls the economic-cum-statistical approach; and he stresses the ability of the actuary to take long views—an essential to all planning, railway and otherwise. The scope for the actuary in the valuation of pension funds and in similar staff problems involving the handling of vital statistics (and the use, Mr. Menzler adds, of punched card machines, in which actuaries are particularly skilled) is obvious.

Operational research, or the planned observation of equipment in actual service conditions, so as to ensure its best use and improvement of design, has in the past been conducted largely by mathematicians and various types of scientist, but Mr. Menzler suggests that the actuary,

because of his ability to handle statistical data, has much to contribute to this rapidly growing activity in the transport and other industries. Of rather less direct application to the transport industry is the problem of "wastage" in what he terms the wear-and-tear of capital assets; without wishing the actuary to trespass in the domain of finance proper, he suggests that his training in study of the factors relating to "wastage" of the human body in life insurance may help as a preparation for service with investment and allied problems; a study of investments moreover is an integral part of the actuarial training syllabus.

Whilst advocating no immediate change in the syllabus, Mr. Menzler suggests that the wider employment of actuaries in industry would lead in due course to modifications which would take into account their wider future responsibilities. He is aware of the tendency of some specialists to suffer from intellectual myopia, but, given the right personal qualities, he stresses that the actuary's specialised training fits him, more perhaps than any other, for general management. He has in fact made out a good case for the actuary in many niches in the transport industry; but many railway officers and others holding responsible positions in transport will question whether actuarial or any other training can be a substitute for practical experience, even although it is a useful adjunct, as preparation for the highest posts in the transport industry.

Locomotive Specifications

AN article in the September issue of *The Times Review of Industry* dealing with problems raised by the recruitment of technical staffs for Government Departments and public corporations makes a point of significance to the locomotive industry. Although the writer is mainly concerned with structural engineering his following comment is of wider application:—

"If this development of enlarged engineering staffs resulted in the reduction of the work which the industry and the engineers are called on to do, it would not be so serious, but in most instances it has resulted in a duplication of effort. Much of the work done by these large staffs is not in the scheming and planning of new projects, but in the progressing and supervision of contracts carried out by industry under the direction of a consulting engineer, thereby detracting from his authority and efficiency, but not materially reducing his labours."

In the locomotive industry the circumstances are somewhat different, and the consulting engineer plays little or no part, his advisory duties being divided between railway and contractor. Where the progressing of contracts and the inspection of work is concerned, the division has been arrived at as the result of practical experience, but in the tender stage matters are not always so satisfactory. This is particularly the case with overseas railways in their invitations to tender.

When the "L.M.A. Handbook" was published it seemed that not the least valuable of its contents was Part II. "Enquiries," with a sub-heading "Enquiries should be accompanied by the following particulars." It is legitimate to assume that these particulars, comprising 19 short details, represent all that is necessary, in the considered view of the firms constituting the L.M.A., for any of them to prepare a tender for steam locomotives to meet a given performance and to be within leading dimensions and weights for the railway concerned. Incidentally, it is to be regretted that, since some of the larger firms in the L.M.A. are also building electric and diesel-electric locomotives on a fairly big scale, they did not see fit to include a few further particulars such as voltage and method of current collection, thus making Part II generally applicable to all types of locomotive.

Despite the guidance offered by the "L.M.A. Handbook" and by standard inquiry questionnaires which many leading locomotive and electrical firms prepare, some railways issue lengthy and verbose specifications purporting to define in meticulous detail the design of the locomotive, the materials to be used, and even the workshop processes to be employed. Other railways go to the other extreme and send inquiries of commendable brevity, which might be summed up in the words "Please quote for a locomotive." Some railway specifications show a curious tendency to develop into manuals on locomotive workshop practice, as exemplified by an extract from a specification issued a year or two ago for electric locomotives: "Gear wheel and axle shall be assembled in accordance with the drawing—white lead in castor oil, mixed to the consistency of cream, or other approved lubricant, shall be used for the pressing-on work." There was much more of a similar nature, and it is a little difficult to understand the object of it. One is almost surprised to find the type of cream left undefined; should it be Cornish cream, or whipped cream, or just cream?

There are several objections to these excessively detailed specifications. Most locomotive builders would ignore requirements cutting across their own workshop methods, for reasons of administrative convenience and economy, and if a Chief Mechanical Engineer should insist on adherence to the letter of his specifications, it would mean a more expensive locomotive to cover the inconvenience and extra cost of adopting new methods. The quoted price would be further enhanced by a "contingency" percentage to allow for the uncertainties involved in estimating with new processes. In addition, it is the usual practice, after a contract has been placed, for railway engineers and manufacturers to hold at least one, and usually several meetings at which modifications to the tender design are arranged. As a result, much of the detail work done at the tender stage is so much wasted labour.

The desirability of not tying a manufacturer down too closely in details is best exemplified by a comparison between U.S.A. and Continental diesel-electric locomotives. Most American locomotive builders aim at the production of a range of seven or eight locomotive types based on two or three diesel engines and a minimum of motor and control gear designs. Usually, they make no attempt to meet the detailed needs of particular railways, and on the rare occasions when they quote "tailor-made" locomotives, the price is usually from 10 to 20 per cent. above British and Continental prices for a locomotive to the same specification.

Generally, in tendering, American manufacturers refuse to produce characteristic curves of engine, generator or motors, contenting themselves with a standardised tractive effort-speed curve of the locomotive and, possibly, an indication of anticipated performance with varying gear ratios. It is difficult to argue that such an attitude is unjustified; the prevailing practice on British and Commonwealth railways of specifying a new locomotive to meet a certain schedule over a given route results in a multiplicity of locomotive types, effectually preventing economies of large-scale production. Further, it is certain that in a short time from entering service the exigencies of railway operation will enforce the working of locomotives over routes differing widely from those for which they were designed.

Another objection to over-detailed specifications has rather more weight in the electric and diesel-electric field than in steam. This is the view that railway engineers are less closely in touch with up-to-date research than are the manufacturers. As a result, it is often difficult to persuade a railway to accept unusual designs or techniques, particularly if these cut across the provisions of an issued specification. Those who have to deal with specifications must be familiar with the remark that "the railway does not wish to constitute itself a guineapig" and this habit of mind is understandable. Fortunately, British Railways have recently shown a laudable desire to assist manufacturers in the testing of new designs in service, as witness the diesel-electric locomotives and the gas-turbine unit now running. It is to be hoped that this facility will always be made available to British manufacturers, as only when the locomotive is running in service do all the teething troubles show up, and it is much easier to cure them in relative proximity to the maker's works than in a country thousands of miles distant.

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

Timetable Maps

November 22

SIR,—Your correspondent Mr. Semmens, in your issue of November 3, 10, & 17, has raised an interesting point. The maps supplied with British timetables are uniformly bad, and that issued by the publishers of *Bradshaw* is a disgrace.

May I suggest that the publishers of the above timetable adopt the layout of *Indicateur Chaix*, the S.N.C.F. official publication, in which all services are grouped regionally and each Regional section of the timetable is provided with a clear detailed map of all lines in that particular Region. Each route is numbered to correspond with the appropriate service table numbers, and, in addition, there is the usual general index at the front of the timetable book.

Most Continental railways use variations of this layout in their official timetables, and it is undoubtedly much simpler and less time-wasting than the complicated and somewhat haphazard layout of British timetables.

Yours faithfully,
E. E. SMITH

Stagshaw Road, Corbridge

The Southern Region Pacifics

December 2

SIR,—The letter in your December 1 issue on the Southern Region Pacific from your correspondent Mr. P. E. Saxby prompts me to write in support. The real trouble is, I think, as ever, that a man with new ideas, shall we say revolutionary ones, is never honoured during his lifetime. Was there not a moaning and gnashing of teeth over Gresley's valve gear design, yet an engine incorporating the idea holds the speed record for any steam driven locomotive? Like Mr. Saxby, I, too, would like to hear the real facts about the performance of these engines, *and* we don't want so called facts based on bad performances caused purely by lack of maintenance.

Yours faithfully,
LESLIE OVEREND

Greengates, Bradford

British Railways Standard Coaches

December 4

SIR,—It is with concern that I read of the new standard passenger coaches being designed for three-a-side seating in the third class compartments. [These coaches were described in our December 1, 1950, issue.—ED., *R.G.*]

Has the Railway Executive, in reaching this decision, ever really got down to a study of what goes on when a train of this stock is fairly well patronised? It is a brave passenger who forces his way into a compartment against the hostile glances of six seated people and demands that armrests be put up to make room for him. Even if he does so, he finds the hard underneath side of the armrest sticking into his back for the rest of the journey, a discomfort far outweighing the extra comfort which the armrest provides when it may legitimately be used. When seat reservations are in force and passengers have paid for their numbered seats, they feel such a secure, vested interest that flat refusals to make room are not uncommon. The inevitable result is that the two dispossessed persons per compartment stand in the corridor and obstruct movement therein.

Has thought been given to what will happen when these vehicles find their way into busy holiday services? Every train will have its third class seating reduced by one-quarter and, apart from all question of cost, there simply are not paths for many more trains at peak periods. Is it contended that progress will have been made in comparison with the excellent post-war stock of the Southern and Western Regions with its four-a-side seating. I have often heard these vehicles praised and never once criticised.

Finally there is the crowning absurdity of a minority of open coaches being built with two seats each side of the gangway, just as though to prove the rest of the policy wrong. Even at this late hour I would urge Members of the Executive to think of Summer weekend loadings from London to Margate (where even non-corridor stock produces standing passengers), the Isle of Wight, Bournemouth, and so on, and to ask themselves how the traffic is to be dealt with on this new basis. It is not too late to revert to four-a-side, which can be done without modifying any of the major features of the design.

Yours faithfully,
R. H. DEWHURST

1, Avenue Gardens, W.3

German Double-Deck Coaches

October 3

SIR,—With reference to your note on Western Germany on page 328 of your issue of September 29, the German Railways were operating double-deck modern stock on the steam-operated Hamburg suburban lines in 1945-46.

I was under the impression that this was Reichsbahn stock, and the coaches had been built by Linke Hoffman, but it is possible that in the then prevailing conditions they had operated the stock from the Lubeck-Buchen Railway.

The stock was marked "D.R." with the usual eagle and swastika, the latter erased by the occupation authorities.

Yours truly,
J. STEELE

34, Victoria Street, S.W.1.

[Our report stated that the new double-deckers were the first to be built for the Federal Railways, as distinct from the Reichsbahn. We do not believe that the Reichsbahn possessed double-deck coaches of modern design, and suspect that the coaches seen by our correspondent were ex-Lubeck-Buchen stock re-lettered by the Reichsbahn, which absorbed the Lubeck-Buchen Railways as from January 1, 1938. The Lubeck-Buchen double-deckers were built by the Linke-Hoffman Werke and were described in our May 22, 1936, issue.—ED., *R.G.*]

Streamliner Success

November 29

SIR,—Mr. Cecil J. Allen's diatribe in your November 24 issue is entirely irrelevant. There is not a word in my letter about "one or two special runs only of American diesel streamline trains proving profitable."

The letter was directed to your own reference to the appeal of these trains to the public, which might lead some of your readers to think that passenger travel was on an upward grade in the U.S.A. That is far from being the case, despite the success of many streamliners on selected routes of heavy passenger density.

With 17 years of experience of diesel-electrics behind him, Mr. F. C. Gurley, of the Santa Fe, said in July last that there is no one formula, such as the wholesale addition of streamliners, for making unprofitable passenger services pay. That is the point my letters have sought to make.

On statistics Mr. Allen goes further astray. The figures in my letter, headed "Coach Design" in your August 25 issue, and in the issue for October 20 & 27, refer solely to passenger carryings and revenue. In particular, the losses on passenger traffic shown in the first letter *exclude* mail, express, milk, and other things which the Americans lump together under the term "head-end."

In August, 1949, the Interstate Commerce Commission

split the passenger train service deficits between passenger traffic and "head-end." The division showed that in 1948 the loss on "head-end" was two-thirds of the total deficit. This calculation probably helped the railways to reach an understanding with the Post Office about mail-pay.

Today, the I.C.C. is considering the agreement submitted by the railways and the Post Office, in the light of statistics prepared by Dr. J. H. Parmelee, Vice-President, A.A.R., and Director of the Bureau of Railway Economics. So far from criticising the I.C.C. formula as "purely arbitrary" he regards it as "designed to reflect a fair distribution of total operating expenses between freight and passenger service."

In a typical year, operating expenses relating solely to passenger train services are about 72 per cent. of the total, the balance of 28 per cent. being the passenger service share of joint costs, such as supervision, maintenance of way and taxes. No apportionment of these joint costs can be precise, but over a period the trend of the results of applying the formula is what matters and that has been, during 3½ years of peacetime prosperity, in the wrong direction.

Yours faithfully,
R. BELL

Frognal, N.W.3

Past and Present Speeds

November 14

SIR,—With reference to recent articles in the press drawing a comparison between railway services of pre-war and present times, I should like to give a personal experience.

On returning from my holiday at Doncaster in September this year I was amazed at the speed of the journey to where I now reside, Carshalton—and I highly commend the Eastern and Southern Regions for this feat.

Dep. Doncaster 3.53 p.m. 5 min. late. (3.48 p.m.); Arr. Kings Cross 7.6 p.m. Total time 3 hr. 13 min.; Taxi to Victoria; Dep. Victoria 7.45 p.m. Arr. Carshalton 8.6 p.m. Total journey 4 hr. 18 min.

I have travelled on Palestinian, Egyptian State and French Railways and they never at any time showed the interest or comfort, such as we receive through the services of British Railways.

Yours faithfully,
D. M. LOVE

17, Gurney Road, Carshalton

Railway Efficiency

October 6

SIR,—One agrees with Mr. H. W. Warwicker, writing in your September 29 issue, that a child must walk before it can run. My complaint is that too many children are taken to be potential athletes when they have been neither tried nor trained in that strenuous following. The result is that maturity finds most of them still walking. I gain heart from the news that one of my "old arguments" (and I make no claim to originality) will shortly be officially recognised with the inauguration of a specialised stationmasters course at one of the Railway Executive schools.

I contend that there are too many applicants of the wrong kind for stationmasters' positions. It is common knowledge, for instance, that Class 5 posts are in deplorably little demand by clerical staff, leaving a selection to be made from men who, despite their excellent operating experience, have but the flimsiest qualification for the wider responsibility involved, and who, because of their scholastic shortcomings, will never be able to fulfil their commercial obligations, keen though they may be.

Seniority will eventually bring them promotion to bigger stations, and, doubtless, an easier task, with larger staffs to assist or carry them. Thus is the future, almost the present, generation of stationmasters, but does this bode well for railway efficiency? Mr. Warwicker should reread my original letter and mark that I advocate the raising of status, financially and authoritatively, with a probable decrease in numbers through an extension of the linking principle. This is indeed, current practice in the North Eastern Region, albeit on a minute scale.

The multitude who apply for vacancies today would never put pen to paper if they knew that they were expected to steer a single ship through troubled waters on their own initiative—let alone perhaps half a dozen. Higher remuneration would attract the men of true vision, capable of making their own decisions, who now are either seeking promotion within the clerical grades or leaving the railway service. Thus would the breed be improved, giving directly better service and higher efficiency; incidentally, the job of management would be made easier.

To the general public the local stationmaster is the pinnacle of railway organisation. People are apt to judge the railways by his ability. Why not therefore ensure that he is a man of standing really worthy of representing a major public interest? In short, why not make him a local officer, in fact as well as in name?

Yours faithfully,
PETER COLLINS
Stationmaster

Barnham, Suffolk

Insulated Rail Joints

October 11

SIR,—In your report on the summaries of replies on railjoint problems to the International Railway Congress Association (*The Railway Gazette*, September 29, 1950, page 329), I was surprised to see that no reference was made to the use of wooden fishplates for insulated railjoints.

Your report states that "insulated joints for track signalling purposes are undoubtedly a source of weakness mechanically, and are unpopular with maintenance engineers." This, perhaps, is not surprising, when one considers the relatively large number of components required in the conventional type of insulated joint, necessitating the use of fibre liners, ferrules, washers, and end posts, in addition to the fishplates, bolts, and nuts. Furthermore, the latter usually have to be of a special design to allow for the thickness of the insulation. Maintenance of these joints is further complicated due to the fact that particular care is necessary to prevent rails, fishplates, and bolts chafing the fibre insulation.

Practically all these difficulties vanish with the use of fishplates made of laminated wood. Only one additional component is required, as compared with the number required for an ordinary railjoint, namely, the fibre end post to prevent the ends of the rails coming into contact. This type of insulated joint is thus virtually the same as an ordinary joint, and requires little extra attention.

It might be asked whether a wooden fishplate is strong enough to stand up to present-day axleloads. Although I regret that I cannot quote any figures, I believe I am correct in saying that modern manufacturing methods have evolved a laminated wood having a shear strength not far short of that of mild steel. I understand, too, that these wooden fishplates have a useful life which compares quite well with that of steel fishplates.

Although I have not had much experience with the use of wooden fishplates, I may say that I have so far been most favourably impressed with their behaviour in the track. Possibly there is some inherent disadvantage of which I am not aware. Perhaps some of your other readers who have had experience with wooden fishplates could give their views?

Yours faithfully,
DERRICK J. W. BROUGH

135, Mulgrave Road, Cheam

[Mr. Croom-Johnson's Report, to which our contributor refers, dealt only briefly with the whole question of insulated joints and did not mention wooden fishplates. The French and Belgians use a laminated wooden plate. This is referred to briefly in Monsieur O. Leduc's Report to the Congress, but for reasons of space could not be mentioned in our summary, which appeared in our October 6 & 13 issue.—ED., *R.G.*]

THE SCRAP HEAP

Early Bird

A swan waddled on to the platform at Ickenham Station recently and tried to get into an early train. The swan was caught and the train left only a minute late.—*From "The Star."*

Clean and Tidy Stations

Sixteen stations in the North Eastern Region of British Railways have won first class prizes of £5 for cleanliness and tidiness. They are Barrasford, Clifton Moor, Croft Spa, Easington, Fyling Hall, Humshaugh, Middleton-in-Teesdale, Morpeth, Ripon, South Shields, Stainton Dale, Wallingfen, Westgate - in - Weardale, Widdrington, Wilmington, and Whitby Town.

Secret Toot

Although hundreds of technicians at Crewe locomotive works know exactly what the first standard British Railway engine—the "Pacific"—will look like, mystery shrouds the tone of its whistle. British Railways inherited about a dozen private-enterprise toots of various pitches, and have to decide whether to continue this discordance or, more appropriately, to give their new engines a tone which would let them speak with a united voice.—*From the "Daily Mail."*

Welsh Waterloo—"The Other Half"

A correspondent sends us a photograph of Fountain Bridge Halt as the counterpart of the Welsh Waterloo, illustrated in our issue of October 20 & 27. The point is that Fountain Bridge is in Monmouthshire, and as the two halts may be regarded as the two widely-separated "platforms" of one station, one platform is in England and one in Wales. By itself, Fountain Bridge is, our correspondent submits, the smallest station in England.

Waterloo has six trains only on Saturdays; there are five on other weekdays and none on Sundays. Also, adds our correspondent, Fountain Bridge is on the down line, not the up line as stated. All the branch lines which converge on Newport are reckoned as "down" to that station, presumably because the valleys in which the railways run fall in that direction.

Oldest Railway Station

It should be remembered that George Stephenson did not invent railways; he invented a steam engine to draw coal wagons on the colliery railway, subsequently modifying rails to suit better his later engines and trains of carriages. The rails at Mitcham Station are laid in the track of the rails of the "Surrey Iron Road," the first public railway. A relic of this remains in the title "Tramway Path" of the little road outside the southern fence of the cutting.

The railway was opened in 1804 for horse-wagons carrying goods between Croydon canal dock and a dock on the Wandle near its Thames junction. Mitcham Station would give communication between the Iron Road and the important London-Mitcham-Sutton high road. We may guess that the curious concrete road, sloping down through the house from under the entry arch, was formerly continued as a ramp along the north bank of the cutting to railroad level, so that wagons could pass between high road and railroad.

Accepting this, there can be no doubt that the house was built when the 20 yd. of tunnel for the Iron Road was made under the high road. We use at Mitcham a railway station built as such on the Surrey Iron Road in 1804.—*G. P. Bidder in a letter to the "Sunday Times."*

On The Air

You know that feeling you get when you're about to propose or before the dentist puts the drill in your mouth? I had it.

I was so nervous that I could hardly grasp the script, and I was certain that when I tried to speak, the only sound would be a miserable croak.

It was the realisation of the tremendous powers that my eloquence would wield that finally dispelled my fears. Soon, I thought, my voice will be influencing hundreds of innocent people.

Misused, that power can destroy their happiness, even if only for a while, causing them anxiety and discomfort, but properly handled it will help them on their way, dispelling all doubts and fears.

The studio clock was racing round to zero hour; without a tremor I stepped forward to the microphone, and at the proper signal I started my first broadcast.

"The train now standing in No. 1 platform is for Buppington and all stations to Eastwich."—*P.L., Southport.*

Cleaner Trains Campaign

(*Every member of British Railways staff who sees unsatisfactory conditions in trains is asked to bring them to the notice of a responsible officer*)

Railways ask for cleaner trains
On Branch lines, as well as Mains,
All an helping hand can lend,
In tunnels and at journey's end.

By closing windows, shutting doors,
And keeping litter off the floors,
When travelling on the Iron Road
See that cleanliness is the code.

Staff on Rails can play their part
In making cleanliness an Art;
And with their co-operation,
There will be less aberration.

Until new stock becomes profuse,
Old coaches must be kept in use,
Which, though well cleaned, as
cleaners can,
Never look quite spick and span.

Cleaner trains, it is quite sure,
Will more passengers allure;
To make cleanliness an Art,
Everyone must play his part.

Help the Cleaner Trains campaign,
When you're on the Branch and Main,
So that with a sense of pride,
All in British trains can ride.

W. E. N.

Fountain Bridge Halt, Monmouthshire, served only by down trains between Caerphilly and Newport (see paragraph above)

Photo] [W. J. Skillern

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

SOUTH AFRICA

Port Elizabeth Harbour

The rise in the volume of cargo handled at ports has frequently strained harbour facilities, and the Railway Administration has constantly to give attention to the improvement of conditions at the ports. At Port Elizabeth, where the total volume of cargo handled rose from 622,330 harbour tons in 1945 to 1,898,792 in 1949, additional shed accommodation is being provided on the Charl Malan quay, which will much improve in the working of ships through the more rapid handling of cargo.

The extensions, which increase harbour accommodation by some 15 per cent., are a widening of the existing sheds which provide additional floor space of more than 60,000 sq. ft. The cargo capacity has been increased by 714,476 cu. ft., representing nearly 18,000 harbour tons. Nineteen 4-ton cranes and one 15-ton crane serve the extended sheds.

Cape Main Line

A direct connection for goods traffic between the Bellville marshalling yards and the goods yards at Cape Town will be provided when the additional line under construction between Bellville and Woltemade No. 1, is completed. This will be the third line between these two stations and will be approximately eight miles in length.

The sections between Woltemade No. 1 and Elsiesriver, and between Belville and Tiervlei, have already been completed. Between Tiervlei and Elsiesriver the two main lines will first have to be diverted. The new line will not be electrified for the present and it will be used mainly for through passenger and goods trains, thus bringing relief in the handling of heavy main line traffic.

Cape Midland Main Line

Work on the regrading of the first section of the Cape Midland main line, which links Port Elizabeth with the interior, began in July, 1950, on the 24-mile section between Sheldon and Cookhouse. For this work, which includes the re-siting of Golden Valley Station, £901,021 has been provided in the estimates. The complete work to be undertaken, of which the section between Sheldon and Cookhouse is the first stage, includes the entire main line from Port Elizabeth to Naauwpoort, 271 miles.

The second stage covers the section between Bushmans River and Sheldon and the third stage that south of Bushmans River to Alicedale. On completion of the new line, which traverses a mountainous region and follows the course of the Great Fish River, crossing it six times, the gradient between Port Elizabeth and Naauwpoort will be 1 in 80 compensated in both directions, as against the present ruling gradient of 1 in 40 uncompensated. Curvature will be greatly reduced and the total length of the line shortened by more than 20 miles.

The first stage of the work mentioned above entails heavy earthworks which will include 500,000 cu. yd. of cutting, 660,000 cu. yd. of embankment, 28,000 cu. yd. of concrete in culverts, and one tunnel 560 yd. in length. The second stage, which deviates the line for 23 miles, will constitute the major portion of the work south of Cookhouse. Here, there will be 975,000 cu. yd. of cutting, 1,070,000 cu. yd. of embankment, 70,000 cu. yd. of concrete, and four tunnels, the longest of which will be 1,267 yd. The estimated cost of the work on this section amounts to £1,824,345. The third stage will cost only £78,000, entailing two deviations with a total length of less than two miles, and the re-positioning of Doornkop Station.

The heavy volume of work entailed in the first two stages will, by the regrading, eliminate the necessity for double-heading and allow engines to haul approximately twice the present train loads. The working of heavy loads will also be facilitated by improvements in the approach gradients to stations, and sidings will be lengthened so that longer trains may be operated. Several stations will be re-sited. All level crossings where the main roads cross the line will be replaced by bridges.

QUEENSLAND

Re-equipment Programme

The present large programme of locomotive and rolling stock re-equipment includes 154 steam locomotives to cost well over £5,000,000, on order from Australian and English workshops. The distribution is as follows: Walkers Limited, Maryborough, 60; Clyde Engineering Company, N.S.W., 5; Ipswich railway workshops, 24; Vulcan Foundry, Limited, 35; and Beyer Peacock & Co. Ltd., 30. Tenders have been called for the supply of 10 diesel-electric locomotives for working long-distance mail services.

Some 3,500 wagons, estimated to cost £4,750,000, are also being ordered or on order. A new 13-coach steel air-conditioned train with a special coach for supplying power for the air-conditioning is at present being constructed. Also a contract has been placed with the Commonwealth Engineering Company for the design and construction of eight other complete air-conditioned trains, estimated to cost about £2,000,000. These trains are to be built at the Rocklea Works, Queensland.

Ipswich railway shops have received orders for 52 coaches costing some £400,000. A slightly larger sum is allotted to cover the cost of 12 diesel railcars and 12 trailers, to be built by the Commonwealth Engineering Company. The Ipswich, Rockhampton, and Townsville shops are also to be re-equipped with many new machines, and the first of the new shops at Redbank are to be built to reinforce Ipswich shops.

Engineering Works and Electrification

On the civil engineering side, an 11-mile link is to be constructed between Biloela and the Callide coalfield. Also, the rack section between Moonmera and Moongan is to be eliminated; each of these works is estimated to cost about £400,000. A further £235,000 is to be expended on the doubling of the Yeerongpilly-Kunaby section, and another £400,000 on new stations and the strengthening of track and bridges to carry heavier locomotives.

The heaviest prospective expenditure is, however, for the electrification of the Brisbane suburban lines, which, it has now been decided, is to be carried out. Rolling stock and power supply equipment is expected to cost nearly £9,000,000.

VICTORIA

Brown Coal Tests

The Railways Administration has arranged to send samples of brown coal from the Yallourn coalfield to the Bituminous Coal Research Committee at Baltimore, U.S.A., for testing, to ascertain whether it is suitable for producing fuel for gas turbine locomotives.

Locomotive Deliveries and Orders

The recent delivery of eight of the 50 "N" class 2-8-2 locomotives ordered from the North British Locomotive Co. Ltd., Glasgow, is the beginning of a flow of much-needed engine power from Britain, from Australian contractors and from the Department's own workshops at Newport.

During the depression and war years, the locomotive building programme was so restricted that the average age of locomotives now in use is beyond economic limits; consequently, engines spend too long a period in workshops while undergoing repairs and maintenance.

The first of the 20 "N" class engines to be built at Newport and some of those imported are already in service. Each engine and its tender, which weigh 70 and 22 tons respectively, were lifted on to the rails at Nelson Pier, Williamstown, by a 100-ton gantry specially imported to handle the 120 locomotives ordered from the North British Locomotive Co. Ltd. The 71 tons of ballast on the carriage of the crane consist of armour plate cut from the armament of the famous British battleships, *Renown* and *Iron Duke*.

Orders have been placed in England for 170 steam, 17 electric and 10 diesel-electric shunting locomotives, and with a New South Wales engineering firm for 15 steam locomotives. Altogether, 229 steam and electric engines have so

far been ordered. The purchase of 17 diesel-electrical main line passenger and goods locomotives from the Clyde Engineering Company, New South Wales, depends on a dollar import licence being granted for the American power units.

With the delivery of all these locomotives, the Department will be able to provide a better service and also scrap many older engines. The general effect will be that workshop facilities will be available for more new construction work, instead of being forced to concentrate on maintenance.

CANADA

Season Ticket Rates

The Board of Transport Commissioners has allowed a number of railways to increase by 20 per cent. the current season ticket rates. The lines included are the Canadian National Railways, the Dominion Atlantic Company, the Canadian Pacific Railway, New York Central Railroad, the Toronto, Hamilton & Buffalo Railway, Montreal & Southern Counties Railway, and the Niagara, St. Catharines & Toronto Railway. United States lines included in the order will be affected only so far as Canadian operations are concerned.

The board also ordered that the railways issue season tickets valid for 40 journeys on the same conditions and at rates 10 per cent. less than those now applying on 50-journey tickets. It ruled that the 20-journey tickets now available only to holders of 50-journey tickets be made available to holders of 40-journey tickets. The new season rates are in place of higher rates proposed by the railways last year. These were suspended after protests by season ticket travellers. A suggestion by the railways that the board had no jurisdiction in the matter of season tickets was discussed; it was stated that the Railway Act gave it authority.

ARGENTINA

Eva Peron Station

Niquivil Station on the General Belgrano Railway will henceforth bear the name of Eva Peron in homage to the wife of the President of the Republic.

Minister Visits North America

Colonel Juan F. Castro, Minister of Transport, recently visited Mexico, as the head of the Argentine delegation to the seventh Panamerican Railway Congress. In a Press interview he stated that up to the present the income of the railways had not exceeded expenditure, but that as from January, 1951, it was expected that a profit would be made, and, as previously announced, 25 per cent. of such profit would be distributed among the employees and workmen. The general cost of fuel and spare parts, he added, had increased by more than 500 per cent.

From Mexico City, Colonel Castro travelled to New York with Colonel J. R. Zubieta, President of the National Railway Directorate, to visit American railways, and makers of railway equipment.

Additional Diesel-Electrics

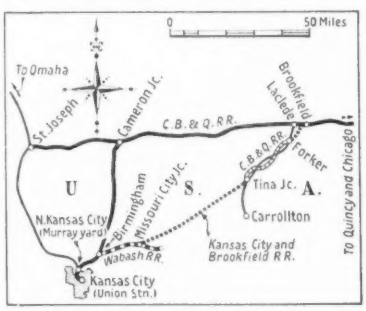
The Ministry of Transport has signed, subject to the approval of the National Economic Council and the Executive Power, contracts for the purchase of a further 70 diesel-electric locomotives to be built in the U.S.A. The General Electric Company, U.S.A., will supply 25 1,500-h.p. metre-gauge locomotives, five more of similar type for the broad gauge, and a consignment of spare parts, to a total of U.S. $7,460,000. Baldwin Locomotive Works will supply 40 locomotives of the same type for broad-gauge services, with a consignment of spare parts, the total value of the purchase being U.S. $9,655,000.

UNITED STATES

New Burlington Chord Line

Construction is in hand on an important cut-off, foreshadowed in our March 11, 1949, issue, with the object of shortening the Chicago, Burlington & Quincy route between Chicago and Kansas City by some 22 miles. The new line will enable the Kansas City Zephyr trains, when they are put into service, to maintain a high-speed schedule throughout, which is impossible by the existing roundabout route *via* Cameron Junction, due to its severe gradients and curves.

The new route leaves the old about three miles west of Brookfield and is



Map of Brookfield-Kansas City cut-off being built by the Burlington

single-line throughout. It consists of (a) a new 6½-mile direct link to Forker—a station on the existing Lacledé-Carrollton branch line, (b) the Forker-Tina 22-mile section of that branch, entirely reconstructed for high-speed running, (c) a completely new 42½-mile link between Tina and Missouri City Junction, on the existing Wabash Railroad, and (d) running powers over the Missouri City Junction-Birmingham 16-mile section of the Wabash line, to rejoin the old Burlington route at Birmingham.

The new route between Brookfield and Birmingham is 89½ miles in length—as compared with 112 miles *via* Cameron Junction—and the estimated cost of all the construction and reconstruction works involved is some £5,750,000. Location was based primarily on composite maps prepared photographically from contoured maps of the area of four different scales and from aerial survey maps, much field-work thus being saved.

Some 7,500,000 cu. yd. excavation is involved including over 700,000 cu. yd. in rock. Soil analyses will be made as the work proceeds by a special analyst, who will also ensure that no unsuitable material is used in fills and that proper compaction takes place. All new underbridges are designed for E-72 loading; 31 of them are over waterways—including one consisting of over 200-ft. through truss span flanked by two 100-ft. plate-girder spans on each side, and a 750-ft. timber trestle viaduct, both on the reconstruction of the branch—one is over another railway and five are over roads. There will also be nine road overbridges, 74 level crossings, and 31 box- and 320 pipe-culverts. Seventy-one miles of new 112-lb. torsion-resisting rails will be required, and there will be six 140-wagon passing loops each 7,700 ft. long.

The entire route from Brookfield to Missouri City Junction will be equipped with the latest type of centralised traffic control. The work is expected to be finished about November, 1951.

URUGUAY

Diesels Ordered

The State Railways have ordered from American manufacturers 26 diesel-electric locomotives at a cost of U.S. $4,240,144, to be paid in instalments through the International Import-Export Bank over a period of six years.

PARAGUAY

Binder Station

In recognition of the 40-year connection between the Republic and Mr. B. H. Binder, Chairman of the Paraguay Central Railway, the Paraguayan Government has named after him a new station situated seven miles from Asunción.

CZECHOSLOVAKIA

Sleeping Car Services

On October 1, the Compagnie Internationale des Wagons-Lits, whose contract with the State railways expired on December 31, 1949, gave up its sleeping coach services on Czechoslovak lines, and on the lines connecting Prague with Eastern European countries. The company will continue to provide sleeping cars on the main international lines connecting east and west.

Internal sleeping car services and those running into neighbouring Eastern European countries will henceforth be run by a Czechoslovak travel co-operative, which, it is understood, was able to buy some sleeping cars from the Wagons-Lits Company. As the new undertaking is short of sleeping cars, it is announced that sleeping-car services have been temporarily suspended between Prague and Brno, and Prague and Gottwaldov.

The Railway Situation in U.S.A.—8*

Summing up present-day problems

(By a Correspondent)

SEVEN articles in previous issues contained a digest of evidence given on behalf of the Association of American Railroads to the Senate Committee on Interstate & Foreign Commerce. The submission of the railways' case was completed by five more statements made in July. These are summarised briefly in this article.

Impact of Taxation

Mr. Thomas L. Preston, General Solicitor, A.A.R., discussed the impact of taxation on the railway industry and outlined proposals for a modest measure of relief. He stressed the urgent need for the outright repeal of the excise taxes on transport, imposed as wartime exactions. These taxes at present stand at 15 per cent. on passenger fares and 3 per cent. on freight charges, except that coal is taxed at 4 cents a ton. The railways, at large expense, collect for the Government the amount of the taxes, which add to their own operating costs and reduce their revenues.

Mr. Daniel P. Loomis, Chairman, Association of Western Railways, dealt with the knotty subject of railway labour legislation. He said that "the situation today, and in the last ten years, has been the worst in history since the first attempt of Congress to deal with railway labour disputes." That attempt was made in 1888. The A.A.R. does not see any solution of the problem other than compulsory arbitration. For ten years the recommendations of emergency boards, appointed by the President, have been accepted by the railways but rejected by the trade unions almost as a matter of course. It would therefore be preferable to apply the judicial process to labour disputes and have binding decisions made after a full hearing of all parties concerned.

Efficient Railway Management

Mr. F. G. Gurley, President, Santa Fe Railway, defended the efficiency and vigour of railway management. He claimed that in the 10-year period between 1939 and 1949 the productivity of the railways increased over 30 per cent., or at an average rate of 3 per cent. per year. In the same period the rate of productivity in the U.S.A. manufacturing industry was only one-half of that of the railways. Mr. Gurley added that he had a part in the design, construction, and operation of the first of America's diesel streamliners and had been close to the new technologies and "the new look," experienced during the past 16 or 17 years. Everything which the engineer, the scientist, and the metallurgist produced, he emphasised, was used in rail transport. His own railway had reduced or eliminated 1,100 curves at a cost of some $23·5 million, all financed from earnings. That was how the Santa Fe paid for its improvements and any transport agency should finance its operations in the same way. All that Mr. Gurley advocated was that his competitors be required to pay their bills—the taxpayer should not pay part of them.

Mr. Champion McD. Davis, President of the Atlantic Coast line, explained the problems of his railway, which operates 5,500 route miles in six south-eastern States. Its fruit and vegetable traffic and tourist passenger travel are seasonal, with the result that its earnings are highest during the first five months of the year, while it may have a deficit during the summer months. Atlantic Coast Line has paid an annual dividend of $4 per share on common stock since 1945 and, to preserve a margin between revenues and expenses needs capital for improvements. During the last decade it has reinvested in the property more than the total amount of its outstanding debt.

Mr. Davis expatiated on the concern of Atlantic Coast Lines at the tremendous inroads, which unregulated, exempt motor carriers have made on rail carryings of fresh agricultural produce. The railways have long since lost the bulk of the Florida strawberry traffic and the volume of vegetables conveyed by rail decreased by 8 per cent. during the 1949-50 season though production was 27 per cent. greater. Mr. Davis also described the "distressing loss" suffered on unprofitable passenger train services, especially on branch lines. He gave details of losses totalling $2,000,000, incurred by the Atlantic Coast Line since 1947, through delays on the part of regulatory bodies in dealing with applications to withdraw services which could not meet expenses. Long-haul through passenger trains between distant points showed a profit, which was swamped by the loss on branch line trains. Mr. Davis said that in spite of all handicaps his Line provided its patrons with the basic transport service that the nation's economy demanded, but pleaded for fair and impartial regulation of all modes of transport.

Discriminatory Subsidies

Mr. Roy B. White, President, Baltimore & Ohio Railroad, had four points to emphasise before the Committee.

1. Railways were on an unsound economic basis. During the four years 1946-49 railway earnings averaged only 3¼ per cent. on net investment, while other industries earned from two to four times that rate of return. The ratio of the railway wages bill to the value of its product was higher than the same ratio in all manufacturing industries, so that wage increases affected railway earnings seriously.

2. The U.S.A. must have good, strong railways. There is no kind of transport that can take their place. Two world wars proved that railways were the only true, all-weather, day-in-and-day-out common carriers.

3. The primary cause of (1) was unfair competition. The railways sought competitive equality—a fair field for all—with favours to none. In a time of expanding traffic, the railway share was decreasing, while that of subsidised rivals was increasing rapidly. The railways had not lost traffic through the level of their rates, which in 1949 represented a lower percentage of the value of the goods carried than they did in 1939. The end result of the subsidy policy now operating was the creation of discrimination among traders, the imposition of a tax burden upon the public and serious injury to the indispensable carriers by rail.

4. The remedy was corrective legislation which Congress should enact. Only by the removal of discriminatory subsidies could the United States continue to have economically sound and physically fit railways.

(Concluded)

* Previous articles in this series appeared in our issues of June 9, August 11, 18, and 25, September 8, October 20 & 27, and November 3, 10 & 17

FARADAY HOUSE OLD STUDENTS ASSOCIATION. — Under the chairmanship of Mr. A. W. Berry, the annual dinner of the Faraday House Old Students Association was held on November 3, at the Savoy Hotel, London. The principal speakers were Lt.-General Sir Ronald Weeks, Chairman of Vickers Limited, and of the National Advisory Council for Education in Industry & Commerce, and Sir Noel Ashbridge, Director of Technical Services, B.B.C. Other Past-Presidents of the Institution of Electrical Engineers present were the Earl of Mount Edecumbe, Sir Vincent de Ferranti, Sir Arthur Fleming, and Mr. P. V. Hunter. Mr. A. W. Berry, Director of the British Engineers' Association, is the third member of his family to hold this office.

LEYLAND COACH TO TOUR NORTH AMERICA. —Destined for a 10,000 miles tour of North America, embracing cities as far afield as Montreal and Los Angeles, a streamline coach recently left Leyland for Manchester for shipment. The coach is one of 12 new Royal Tiger models which Blue Cars (Continental) Limited proposes to put in service in Switzerland, Germany, France, Italy, and Spain, and by demonstrating these coaches in America it is hoped to attract more bookings for tours in Europe from Americans and so increase our dollar earnings. The coach has its engine mounted below floor level, leaving the complete length of the body free for driver and passengers, while deep armchair seats can be adjusted to one of four positions by merely operating a knob. Overhead visibility is increased by the use of transparent panels in the roof and along the structure above the windows.

New C.P.R. Freight Terminal in Montreal

A hump retarder yard, costing some £4,000,000, with 75 miles of track and equipped for push-button control

THE Canadian Pacific Railway opened on July 6 last a new freight yard at St. Luc, Montreal, replacing the existing yards of Outremont, Sortin, and Hochelaga. It occupies a site near the intersection of the main line leading to Montreal from Smiths Falls and the west, and the main line from Sherbrooke and the east. Although the yard covers nearly 700 acres, no dwelling had to be demolished, or highway diverted.

The project cost approximately £4,000,000 and took more than two years to complete. There are over 75 miles of track, and it was necessary to bring in 1,400,000 cu. yd. of spoil to raise the tracks to the required height; 200,000 cu. yd. of gravel ballast were used.

The design of track layout conforms to the principles set out by the American Railway Engineering Association, modified to Canadian requirements. The terminal consists of three major yards, as well as storage and repair tracks. From the north, the first yard is the receiving yard, where all trains enter. It has 15 tracks and a capacity of 1,151 wagons.

From the receiving yard wagons are hump shunted into the classification yard, which has 40 tracks and a capacity of 1,550 wagons. It is in this yard that new trains are made up before being moved to the 35-track 1,717 wagon departure yard at the south end of the terminal.

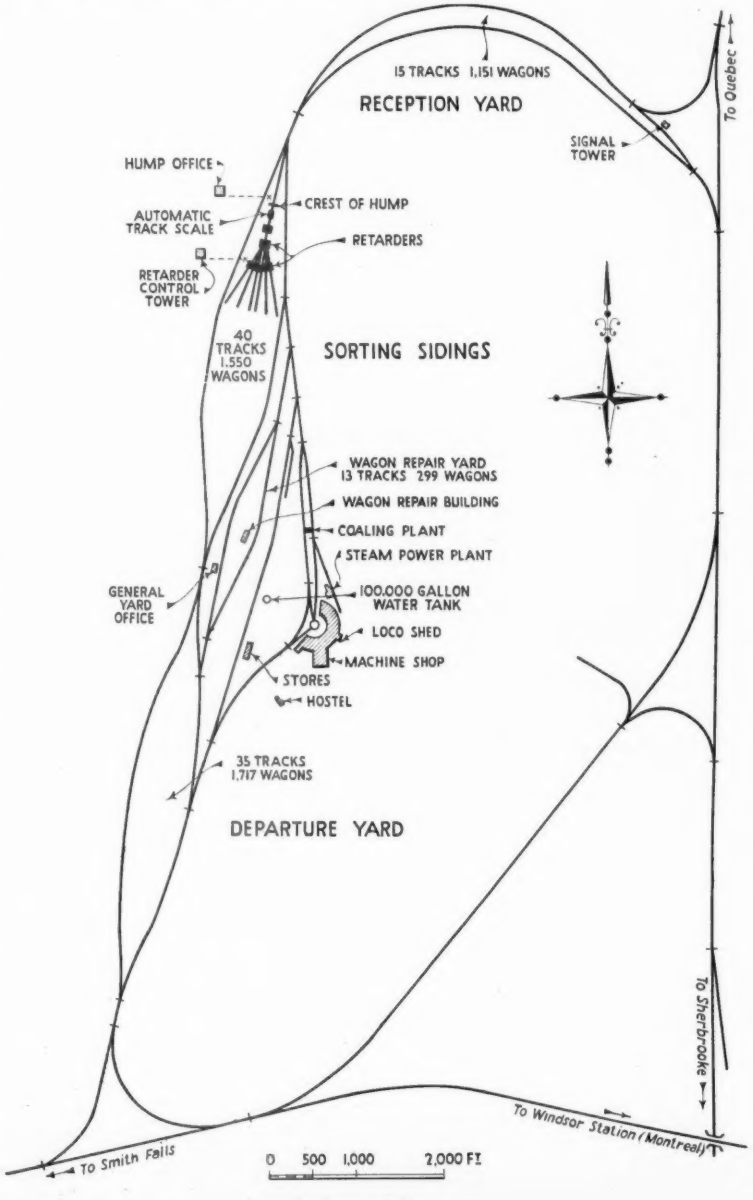
Wagon Retarders

A unique feature in North American practice is the hump retarder system used for switching wagons. The push-button system that is used for switching the wagons as they roll down the hump, is the most modern feature in American railway practice, and the Canadian Pacific is the first North American railway to adopt it. The equipment used for controlling the speed of wagons on their descent from the crest of the hump to classification yard is the all-electric type wagon retarder.

Retarder mechanisms are generally made in length of 38 ft. 6 in. and are equipped with four cast steel shoes, one on each side of the rail, which are pressed against the inner and outer sides of each bottom 2 in. segment of wheel of passing wagons. The intensity of pressure is varied by an electric motor driven through a train of gears to a series of levers and springs which open or close the space between retarder shoes. Rotation of the motor in one direction moves the shoes towards each other. Rotation in the opposite direction spreads the shoes.

To retard, the shoes are placed so that the spread between them is less than the width of the wagon wheel. As the wheel moves between the shoes the retarder springs are compressed, the amount of the compression determining the degree of retardation. The shoes may be placed in one of four positions or they may be opened to clear the wheel, and the setting may be changed whether there is a wagon on the retarder or not. A solenoid brake on the motor maintains the retarder in a selected position until the setting is changed.

The degree of retardation necessary varies with the weight of the wagon, condition of journals, wheel wear, wind resistance and so on, and for this reason provision is made for the operator to vary the retardation applied. The controls consist of a position selector for each retarder and a toggle switch for each section. The usual practice followed is to set the selector in a position estimated to be satisfactory in advance of the entrance of the wagon; when the wagon has been slowed to the desired speed the operator then opens the toggle switches without changing the retarder setting. Should he have erred in judg-



Layout of the yard

ment as to correct setting, the selector can be repositioned to any other degree of retardation whether higher or lower.

Closely associated with the operation of the retarders is the control of electrically-operated switches between the crest of the hump and the entrance to the classification tracks. The entirely new system of automatic switch control developed by the General Railway Signal Company of the U.S.A., which also supplied the retarders, is especially suitable for application to hump shunting operations.

The track between the crest of the hump and points leading to classification tracks is divided into a number of circuits by insulated rail joints. The routing of a wagon to any specified track in the classification yard is accomplished by pushing a button on a control machine at the crest of the hump. The route to be followed by that wagon is then set up by a system of relays which position points along the route just ahead of the movement of the wagon until it reaches the designated track. High-speed electric point machines are used with track circuits arranged so that points will not move under a wagon or when there is insufficient time for points movement to be completed.

The system provides for storing route directions for four consecutive cuts of wagons at one time. As one movement is completed another movement may be set up, or if three movements have been completed three more may be set up. The advantage of automatic point control over conventional system is that it eliminates the necessity for manipulating controls for the four to seven points that each rake of wagons must pass over *en route* from hump to classification track, each points having to be operated at the proper time to suit the movement of the rake.

With manual points control in a yard of this size, three retarder operators stationed in three different towers would be required, each having the duty of operating points and retarders in a given area. Under automatic control one operator in a single tower controls all retarder operations, and is relieved of the positioning of points as routes are established by the foreman in charge of hump shunting operations. The automatic system saves labour, eliminates hazards and errors inherent in human control, and makes for better regulation of wagon movement since the control of all retarders is co-ordinated by one operator.

Track Scale

Some 4 to 5 per cent. of the wagons passing over the hump require to be weighed, so that the correct pressure may be applied to the retarders to stop the wagon. As wagons to be weighed require to be uncoupled from adjacent wagons it was apparent that to avoid interruptions in the shunting operations it would be necessary to make provision for weighing while wagons are in motion. A Fairbanks-Morse four-section suspension bearing type track scale having weighrails 76 ft. long and a capacity of 150 tons was therefore installed just beyond the crest of the hump.

Operation of this type of scale requires that each wagon to be weighed shall be on the weighbridge for not less than four seconds. To secure this an automatic scale retarder has been installed just in advance of the scale. The track in advance of and through this retarder is equipped with a number of short rail circuits connected to timing relays As a wagon approaches and passes through this retarder the track circuits maintain a check on its speed and, through the timing relays, arrange for retardation to be applied or released as required. A control button in the hump office enables the foreman to put this retarder out of action when wagons do not require weighing, or to apply full retardation when necessary.

The track scale is equipped with a Streeter-Amet automatic recording device to register the gross weight of the wagon. The scale operator records the tare weight stencilled on the side of the wagon and, by subtraction, the weight of the load is obtained. The scale is also equipped with dead rail assembly so that locomotives may be operated over the scale without damaging the weighing mechanism.

Hump Signals

Control over hump movements is exercised by a signal system operated from the hump office. Appropriate aspects can be displayed to indicate "proceed towards hump," "proceed at humping speed," "stop" or "back-up." Provision is also made to enable the retarder operator to change hump signal indication to "stop." The hump signal is situated on a high mast at the crest of the hump.

As the hump engine is placed at the rear end of a string of wagons being hump shunted, the view of the signal tower from the engine cab may be restricted by fog or by the curve at the hump end of the receiving yard. Accordingly, engines assigned to this service have been equipped with cab signal apparatus, and each track in the receiving yard is equipped with the necessary circuits. When the points leading from the track to hump are properly set for the movement from

Retarder control tower

that track the aspect displayed by the hump signal will be repeated in a miniature signal in the cab of an engine on that track.

If the points are not properly lined up the cab signal will display "Stop." This arrangement also ensures that when two engines are used to hump shunt alternately, only one can receive a "proceed" indication.

The hump signal mast also carries a trimmer signal, faced towards the classification yard and used to control the movements of an engine engaged in adjusting the position of wagons in the classification tracks. The trimmer and hump signal are interlocked to prevent conflicting movements. The indication displayed by the trimmer signal is duplicated by the repeater signal some way down the classification yard, but is not repeated in the engine cabs.

The inspection of wagons passing through a yard is of great importance in any railway operation as an unobserved defect may cause a subsequent derailment. To facilitate examination of running gear and the under parts of wagons an inspection pit has been provided under the track just in advance of the crest of the hump. In this pit one man is seated directly under the centre of the track and another on the outer side of each rail. As wagons are pushed over the hump at about 2 m.p.h., these men examine the underside of them through shatter-proof glass windows on the top of the pit with the help of a battery of floodlights. If a defect is noticed the wagon is tagged and the hump foreman and retarder operator advised that it should be directed to the repair track.

A dragging equipment detector is also installed on the hump track in advance of the wagon inspection pit. Should there be anything dragging on a train being humped, this detector will operate a warning signal in the pit and set the hump signal to "stop."

To provide easy access to the new yard, connections with four main line tracks have been made at four existing junction points, and two new junctions established. At all these places power-operated points have been provided and signals installed to operate train movements whether to or from the yard, or over the main lines. Operation of points and signals is controlled from a machine in the signal tower at the entrance of the receiving yard. This machine is also arranged to handle an extension in either direction to include four additional junctions now separately controlled.

View showing two retarders and automatic track scale, with sorting sidings beyond

Code track circuits have been used to avoid possible interference from stray electrical currents.

The use of the foregoing equipment and various facilities can best be illustrated by following the movement of a train through the yard.

As the train enters the area controlled by the signal tower at the entrance to the receiving yard, lights on the track diagram on the centralised traffic control machine indicate its progress. By remote control, the operator lines up the switches and clears the signals to divert the train from the main line to the receiving line lead. Pointsmen set the hand-throw points leading to the particular track which the train is to use. After the train has stopped on the designated track the crew book off duty at the signal tower, the guard handing over his waybills which are then taken to the general yard office.

The engine crew, assisted by a yard pilotman, cut the engine off the train and take it to the inbound shop track, after which the engine crew book off duty at the 37-road engine-house, which is equipped for handling both diesel and steam locomotives. Here the engine is supplied with coal and water, dumps its fire at the ashpit, and moves over the turntable and into the engine-house.

At the general freight office, a hump list is prepared from the guard's waybills and transmitted by teletype to the retarder operator and hump foreman. This list, in which wagons appear in the order they are arranged in the train, shows wagon number, type of wagon, whether loaded or empty, and if loaded the nature of its contents, and the number and classification track to which the wagon is to be directed.

Meanwhile the train in the receiving yard is got ready for shunting. After the van has been cut off, a diesel locomotive is coupled to the rear end and when the cab signal indicating proceed is given, the train works towards the hump. Wagons pass over the inspection pit and defects are observed; this information is communicated by the loud speaker system to the hump foreman and retarder operator, who make corrections on their teletype list and divert wagons to the appropriate classification yard track.

Movement over Hump

As the leading wagon approaches the hump the cab signal indication is changed to "hump-slow," either by the hump foreman, or if his attention is diverted momentarily, then automatically. The hump foreman presses the appropriate buttons on the automatic switching machine to divert wagons to the proper track. As they reach the crest of the hump the wagons are uncoupled.

If two or more consecutive wagons are designated to the same classification track they are hump-shunted as one cut. The hump foreman signals the wagon uncoupler by horn how many wagons constitute each unit cut, but if a wagon is to be weighed it must pass over the scale as a single, uncoupled unit. The hump foreman then changes the scale retarder control from "open" to "automatic," and the scale operator records the gross weight and tare weight of the wagon.

The speed of wagons on their descent from the hump to the classification yard is controlled by the retarder operator, who sees that cuts are separated sufficiently to enable points to position themselves between cuts, and to reduce wagons entering the classification tracks to a safe coupling speed.

At the other end of the classification yard, locomotives remove wagons from the various classification tracks in the proper order and assemble them in a track in the departure yard. The number of wagons constituting the proper tonnage for the type of locomotive which is to handle the departing train must be determined. When the wagons have been placed on the departure track the van assigned to the crew which is to take the train out is added, air hoses between the wagons coupled, and the air brake system charged with compressed air supplied from the steam generating power plant through a system of piping serving each departure track.

Meanwhile an engine, ordered to handle the departing train, is turned out of the roundhouse on the charge of steam supplied to its boilers by a direct steaming plant, which will greatly reduce smoke emission. On the outbound track the fire is lit, the tender filled, and the engine turned over to the engine crew called for this train, who take the engine to the departure yard and back it on to the train, after which the air brakes are tested and inspected.

The train crew called for this train come on duty at the yard office where the guard receives waybills covering wagons in his train. When he has delivered a copy of any train orders he may have to the driver the train is ready to depart. It leaves the yard and proceeds on signal indication to the main line, the route having been determined by the operator at the signal tower.

An Improved Lever Box

Ensuring freedom from split switches

A LEVER box known as the David has recently been developed by Thomas Summerson & Sons Ltd., Darlington, which is of all-steel construction and is built up of forgings and bar and steel pressings. Parts interchangeability is assured as the box is manufactured and assembled on fully jigged production lines. The apparatus can be fitted, without adjustment, to all travels of switches from 2½ in. to 5¼ in. It is claimed that it is impossible to "gag" the box, which factor, coupled with the high closing pressure exerted on the tongue rail, ensures freedom from split switches.

For heavy spring switches tandem springs can be supplied which are adjustable to suit the angle of turn-out. Though the box is extremely light to handle it is claimed that it is sufficiently strong to meet the most rigorous demands. The box accommodates itself to spread switches and can be removed from the sleepers without upsetting the adjustment of the switches by the removal of a connector pin which is readily accessible regardless of the travel.

David lever box

BRITISH WELDING ELECTRODES TO BE MADE IN AUSTRALIA.—The board of Murex Limited, Rainham, Essex, announces that it has participated in the formation of a new company known as Murex (Australasia) Pty. Ltd. This company has been formed primarily for the manufacture and sale of Murex arc welding electrodes and equipment and will use the latest electrode manufacturing plant and techniques as used by Murex Welding Processes Limited at Waltham Cross. The head office will be at Derwent Park, Hobart, Tasmania, while branch offices will be established in all State capitals and afterwards in New Zealand. Mr. E. J. Clarke, Director & Development Engineer, Murex Welding Processes Limited, is now in Tasmania to advise on the installation and operation of the new plant.

2-8-2 Locomotives for the Victorian Railways

Though intended for service on 5 ft. 3 in. gauge, these 50 "N" class locomotives can be converted to 4 ft. 8½ in. gauge

FIFTY 2-8-2 type "N" class locomotives are now under construction at the Hydepark Works of the North British Locomotive Co. Ltd., Glasgow, for the Victorian Railways; the first batch has been shipped fully erected to Melbourne. The engines and tenders are being built to the design and requirements of Mr. A. C. Ahlston, Chief Mechanical Engineer, for 5 ft. 3 in. gauge, but are convertible to 4 ft. 8½ in. Inspection at the works of the maker is under the supervision of Messrs. A. E. Turner and John Coates & Co. Ltd., London.

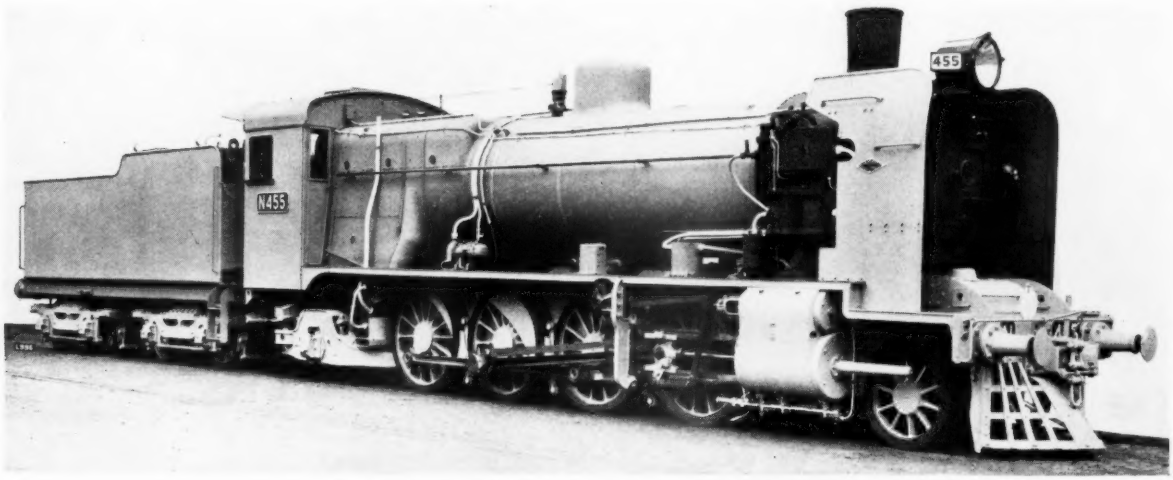
Design Features

The boiler barrel has three rings, the middle one being tapered, with external diameters at front and rear of 4 ft. 8½ in. and 5 ft. 0⅛ in., and there are 94 small tubes of 2 in. outside dia. and 21 superheater flue tubes of 5¼ in. outside dia. The all-welded steel firebox with combustion chamber incorporates Nicholson thermic syphons and two brick arch tubes and is stayed to the roof of the Belpaire type outer firebox by direct roof stays and two rows of sling stays at the front. The waterspace stays are of "Longstrand" steel with flexible stays in the breaking zones.

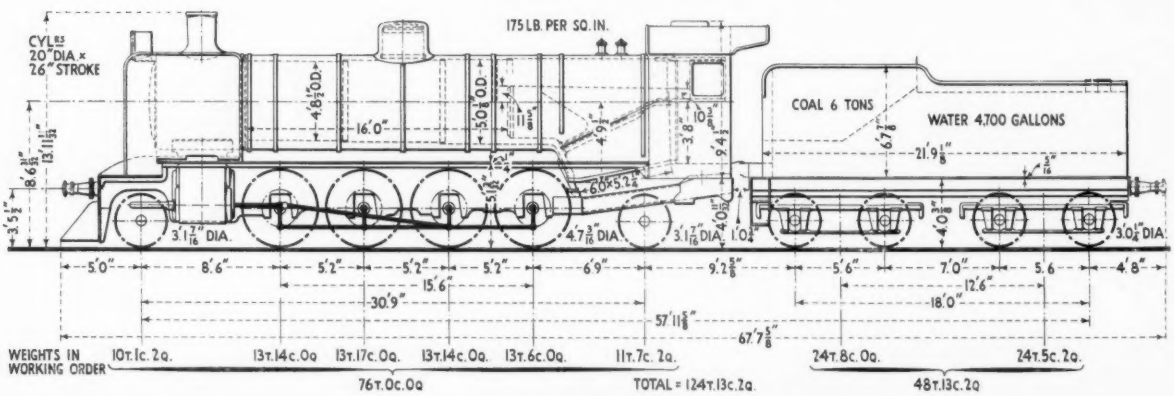
The smokebox, which is of the cylindrical type, is provided with a self-cleaning spark arrester, and the floor is cemented with a mixture of cement, coke, and sand. The boiler and firebox shell is lagged with asbestos mattress and fitted with crinoline hoops on which mild-steel clothing sheets are secured by steel bands. The cylinders are covered with magnesia cement and mild-steel sheets. A 21-element Melsco type "A" superheater is provided and the regulator and steam dryer are situated in the dome. A Waugh type firegrate is fitted rocked by hand in two sections from the footplate. The air-operated Ajax firedoor is controlled by a valve with foot-treadle on platform. Air cylinders are provided for the operation of the ashpan hopper door and the cylinder cock gear.

Engine and Tender Design

Walschaerts valve gear actuates the 10 in. dia. piston valves, and the reversing gear is of the hand-screw type. The valves and pistons are lubricated by a Nathan 6-feed D.V.2 mechanical lubricator. The main frames are of steel plates 1 in. thick, with a hind cradle casting of cast steel, the frames being suitably stayed by steel castings and sections. Coupled axlebox guides of the horn type are provided and the axleboxes are of cast steel with gunmetal bushes lined with tin base white metal. Laminated bearing springs are fitted throughout, the coupled being underhung; the spring compensation is arranged in three groups, front truck, leading and intermediate in first group, driving and trailing in second group and hind truck. Side buffers, central Alli-



"N" class 2-8-2 locomotive for Victorian Railways



Principal weights and dimensions of the locomotive

ance couplers, and screw couplings are provided at front of engine and rear of tender, the tender coupler being fitted with Gould friction draft gear. Distance pieces are provided under the buffers to maintain the proper relation between buffers and couplers during the transition period.

The front truck, of riveted construction, is fitted with cast-steel axleboxes with gunmetal bushes lined with tin base white metal. Side control gear is of the three-pin swing-link type. The control of the all-welded hind truck is by a constant resistance centering device, and cast-steel axleboxes with tin-base white metal liners are fitted. General steam fittings include two Gresham & Craven No. 10 combined injectors, two 3 in. dia. Ross muffled safety valves, two 1½ in. Everlasting blow-off cocks, two sets of water gauges with Klinger type glasses, and a five-chime whistle. Electric lighting equipment includes a Stone's L.B.B. turbo-generator, Pyle headlight, cab lights and back-up light on tender. The engine is equipped with a Flaman speed recorder and staff exchange apparatus is fitted on the side of the cab.

Westinghouse A-6-ET brake equipment is fitted to engine and tender, which includes a 7 in.-80 cross compound air compressor, a No. 8D governor and a No. 54 air strainer. Lubrication of the compressor is by a single feed No. 0 Detroit hydrostatic lubricator. Sandboxes with air operated sand traps are provided to sand at front of leading coupled wheels only.

The tender, of the double bogie type, has a tank capacity of 4,700 gal. of water and carries 6 tons of coal in the bunker. The underframe is built up of steel sections and plates and is of all-welded construction. The tank and bunker plates are welded together, but the internal top, bottom, and side stays are riveted in position. The bogies are of the compensated spring beam type with bar section frames and cast-steel transoms and end ties. Cast-steel axlebox guides are fitted and the axleboxes are of steel castings with gunmetal bushes lined with lead base white metal. Hardened steel guide liners are welded to the axleboxes and axlebox guides. Westinghouse equipment actuates brake blocks on each side of all bogie wheels and a hand brake is also provided.

The following are the main particulars:—

Cylinders, dia.	20 in.
,, stroke	26 in.
Wheels, coupled, dia.	4 ft. 7 3/16 in.
,, front truck, dia.	3 ft. 1 1/16 in.
,, hind truck, dia.	3 ft. 1 1/16 in.
,, tender, dia.	3 ft. 0 1/4 in.
Wheelbase, coupled	15 ft. 6 in.
,, engine	30 ft. 9 in.
,, engine and tender	57 ft. 11 3/8 in.
Height, rail level to boiler centre	8 ft. 6 3/32 in.
,, ,, top of chimney	13 ft. 11 11/16 in.
Heating surfaces:—	
Tubes	1,250 sq. ft.
Firebox, including arch tubes and syphon	203 ,,
Total evaporative	1,453 ,,
Superheater	324 ,,
Total	1,777 ,,
Grate area	31 sq. ft.
Boiler pressure	175 lb. per sq. in.
Weight of engine in working order	76 tons
,, tender ,, ,,	48 tons 13 cwt. 2 qr.
,, E. & T. ,, ,,	124 tons 13 cwt. 2 qr.
Adhesive weight	54 tons 11 cwt.
Adhesive factor at 85 per cent. boiler pressure	4·27
Tractive effort at 85 per cent. boiler pressure and wheel diameter of 54 in.	28,650 lb.

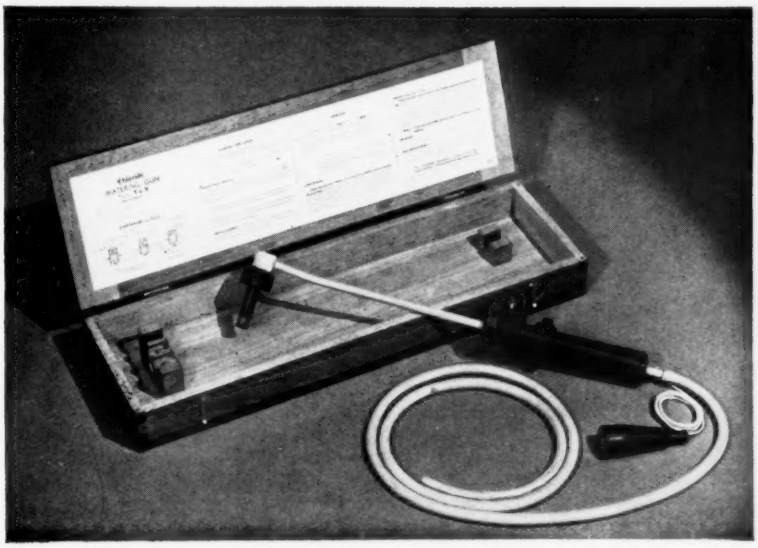
Watering Gun for Traction Batteries

Topping up while the battery is in position

ONE of the problems facing users of traction batteries has been the difficulty of topping up cells accurately with distilled water while the battery is still in position on the vehicle. With a vew to overcoming this problem, a watering device has been introduced by Chloride Batteries Limited that automatically indicates when the operation has been completed, and the correct electrolyte level reached, by illuminating a small electric bulb mounted on the instrument's handle. This gun, evolved after a thorough investigation by Exide engineers, should also prove especially useful for the maintenance of train-lighting batteries.

The watering gun or cell-filler consists of a metal tube and a short spout mounted at right angles on the end which is dipped into the vent hole of the cell. The tube, connected by a length of hose to a water reservoir vessel, is insulated with a plastic covering and fitted with a mould ebonite handle in which all the working parts are housed. Water is gravity fed through the tube and spout to the battery and the flow controlled by a push-button operated stop-cock in the handle.

As the water enters the cell the acid level rises until it reaches an electrode in the spout where it completes an electrical circuit and lights a bulb, thus warning the operator that the correct level has been reached. The current for this purpose is provided from the battery itself. Three different lengths of nozzle may be required, and the watering gun is therefore fitted with two rubber spacing washers to enable the right nozzle length to be provided.



New Exide watering gun

HIGHER PRICE FOR ALUMINIUM INGOTS.—The Ministry of Supply have announced that the price of virgin aluminium ingots has been increased from £112 to £120 per long ton. For metal in notch bar form there is an addition of £2 10s. a ton at present. The new price applies to metal of a purity of 99 to 99.5 per cent. There will be no change in the premiums paid for high purities. This change is due to the freeing of the Canadian dollar and its subsequent appreciation in terms of sterling.

RAILWAY PIONEERS HONOURED.—Engineers of the pioneering days were recognised on October 30 at Newcastle Central Station when Class A1 Pacific locomotives 60142 and 60127 were named *Edward Fletcher* and *Wilson Worsdell*. Among those present were a great grand-daughter and a grandson of Edward Fletcher and a nephew of Wilson Worsdell. Mr. H. A. Short, Chief Regional Officer of the North Eastern Region, presided, and the ceremony of naming *Edward Fletcher* was performed by Alderman N. E. Chapman, Lord Mayor of Newcastle, and *Wilson Worsdell* was named by Alderman S. G. B. Tyrrell, the Mayor of Gateshead.

Recovery Vehicles for London Transport

Special equipment for righting overturned buses

Lifting gear in position. The overturned vehicle is righted by operating the power-driven winch

AN effective means of dealing with major accidents to road vehicles has been developed by London Transport. The equipment comprises a four-wheel drive recovery vehicle carrying a 5-ton crane, equipped with a winch, and a breakdown tender which is, in effect, a mobile workshop mounted on an orthodox 6-ton chassis. This combination allows rapid movement to the scene of the accident, easier manœuvring of the recovery vehicle, and speedy removal of the damaged vehicle whilst the equipment is being reloaded separately.

The latest type of lifting gear for righting overturned buses has been incorporated. If the roof of the overturned bus has not been seriously damaged, slings are placed round it through the upper windows, rigidity being added to the body framework by specially designed stretcher bars placed inside the upper deck from cant rail to roof rail. In the case of a badly damaged roof the strain is taken by a 9-in. by 3-in. plank placed across the upper-deck seats.

A horizontal anchor bar is placed on the ground to locate the wheels, thus preventing sliding during the lift, and incorporates a shoe to take the vertical lifting pole. This is connected to the roof slings by drag ropes and adjustable chains.

The recovery vehicle, having been placed nose on to the casualty vehicle, then proceeds to pull on the top end of the pole by means of its power-operated winch, thus causing the pole and therefore the bus to hinge about the anchor bar until such time as the bus comes upright. To guard against an excessive bounce a pile of boards 6 in. in height is placed opposite each wheel to break the fall of the wheels back to the ground.

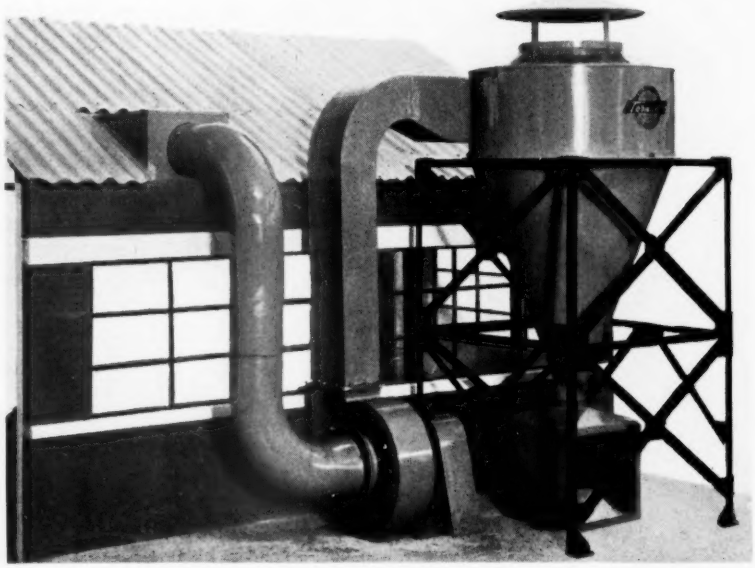
The final stage is the jacking up of the bus to allow the removal of the boards and gear, and the bus is then ready to be towed away, or driven away under its own power.

Refuse Exhaust Plant

Apparatus to assist fuel economy

A WOOD refuse and dust exhaust plant, incorporating a Tornado motor driven padd.e-wheel type fan and centrifugal settler, has been evolved by Keith Blackman Limited, Mill Mead Road, Tottenham, N.17. The equipment is suitable for handling both seasoned or green timber, and also for separating, grinding, polishing, and other industrial dusts from the atmosphere, it can also be designed for use with abrasive or explosive matter.

The equipment consists of a motor-driven fan, centrifugal settler, and connected trunking which is in turn connected with hoods serving saw mill machinery or grinding machines. Depending on the nature of refuse collected, the waste matter is fed to boilers for steam raising, thus economising on fuel. The settlers can be supplied in standard sizes with a range of 2 ft. to 13 ft. dia., handling air volumes up to 27,000 cu. ft. per min. and larger sizes can be supplied to suit particular requirements.



Paddle wheel fan and settler of Keith Blackman refuse exhaust plant

RAILWAY NEWS SECTION

PERSONAL

RAILWAY EXECUTIVE

The Railway Executive has announced that Mr. R. F. Harvey, Motive Power Superintendent, Scottish Region, has been appointed Chief Officer (Motive Power), Railway Executive, as from December 11, in succession to Lt.-Colonel H. Rudgard, who is retiring on December 9.

Mr. G. Pande, Director, Civil Engineering, Indian Railway Board, has been appointed General Manager, Oudh Tirhut Railway, in succession to Mr. G. C. Trehen, who has retired.

Dr. S. F. Dorey
President of the Institution of Mechanical Engineers for 1950-51

Mr. J. O'Neill
Appointed Chief Officer (Paper & Printing), Railway Executive

Dr. S. F. Dorey, C.B.E., M.I.C.E., M.I.Mech.E., F.R.S., who is President of the Institution of Mechanical Engineers, 1950-51, is Chief Engineer Surveyor of Lloyd's Register of Shipping. He was educated at Owen's School, London, and served his apprenticeship at the Royal Dockyard, Chatham. He received his academic training at Armstrong College (now King's College), Newcastle-on-Tyne, where he went with a Whitworth Exhibition and a Lloyd's Register of Shipping Scholarship in Marine Engineering. During the 1914-18 war he served as an Engineer Lieutenant in the Royal Navy. In 1919, after a few months with Sir W. G. Armstrong Whitworth & Co. Ltd., at Elswick, Dr. Dorey was appointed an Engineer and Ship Surveyor to Lloyd's Register of Shipping. After service at a number of ports he was posted to the staff of the Chief Engineering Surveyor in 1924, and in 1932 was appointed Chief Engineer Surveyor. Dr. Dorey is a Member of the Mechanical Engineering Research Board, the British Shipbuilding Research Association Board, and a Vice-President of the British Internal Combustion Research Association. He is a Vice-President of the Institution of Naval Architects, the Institute of Marine Engineers, and the Institute of Metals. He was made a C.B.E. in 1946, and was elected a Fellow of the Royal Society in 1948. Dr. Dorey has contributed a large number of papers to various technical institutions and has been honoured by a number of awards from engineering institutions in this country. He served on the Council of the Institution of Mechanical Engineers from 1939 to 1946 and became a Vice-President in 1947.

Mr. F. D. Y. Faulkner, Assistant Publicity Officer, Railway Executive, has been appointed Public Relations & Publicity Officer, Southern Region, Waterloo, as from January 1, 1951, in succession to Mr. C. Grasemann, who is retiring on December 31.

Mr. J. O'Neill, Acting Chief Officer (Paper & Printing) Railway Executive, who has been appointed Chief Officer (Paper & Printing), entered the service of the L.M.S.R. in 1928 when, as an expert in business organisation and administration, he was invited by the late Lord Stamp to participate in a survey of the company's methods and procedure in respect of printing and stationery requirements. The outcome was the establishment at Euston and Crewe of the Executive Research Office, which, after an exhaustive survey, was responsible for the introduction of new and economical methods for the provision and distribution of all the railway's printed matter. In 1936 Mr. O'Neill assumed sole charge of the Executive Research Office, a position which he retained concurrently with his appointment as Advertising & Publicity Officer. In 1939 he undertook a fresh survey of the printing and stationery position in the light of war circumstances, and was responsible for several wartime developments, including the establishment of special paper reclamation depots at London and Glasgow. He also made a survey of the former Northern Counties Railway in Ireland and established a Stationery Office for that company which formed the basis for the existing Stationery Office of the Ulster Transport Authority. Throughout his service with the company he had frequently acted in a consultative capacity in respect of advertising and publicity matters; and he was appointed to act as Advertising & Publicity Officer in 1944. During his term of office in publicity, Mr. J. O'Neill acted as Chairman of the American Committee dealing with all publicity matters for the U.S.A. and Canada. In 1949 Mr. J. O'Neill was appointed Acting Chief Officer Railway Executive (Paper & Printing).

Mr. A. G. Minty
Appointed District Motive Power Superintendent, Willesden, London Midland Region

Mr. R. Tildesley
Appointed District Motive Power Superintendent, Bletchley, London Midland Region

Mr. L. G. Morris
Appointed District Motive Power Superintendent, Colwick, Eastern Region

Mr. A. G. Minty, District Motive Power Superintendent, Hull, North Eastern Region, British Railways, who, as recorded in our September 22 issue, has been appointed District Motive Power Superintendent, Willesden, London Midland Region, was educated at Brighton College and joined the L.N.E.R. as a premium apprentice at Doncaster in 1922. From 1924 to 1926 he was a pupil of the late Sir Nigel Gresley, then Chief Mechanical Engineer, and finished his training at Doncaster in 1926. After filling various positions, he became Locomotive Shedmaster in charge of Malton Depot and, afterwards, Hartlepool Depot, until 1934. He held joint supervisory posts of Locomotive Shedmaster and Stationmaster at both Alnmouth and Whitby, and in 1939 was appointed Assistant District Locomotive Superintendent at Newcastle. Five years later Mr. Minty was transferred to Sunderland as Acting District Locomotive Superintendent, and in 1945 he became District Motive Power Superintendent at Hull.

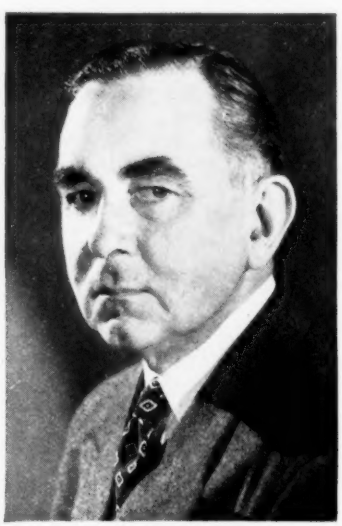
British Railways, Eastern Region, has announced that Mr. K. A. Kindon, Acting District Passenger Superintendent, Sheffield, has been appointed District Passenger Superintendent, Sheffield.

Mr. R. Tildesley, A.M.I.Loco.E., Assistant, Office of Motive Power Superintendent, Euston, who, as recorded in our September 22 issue, has been appointed District Motive Power Superintendent, Bletchley, London Midland Region, was educated at Stand Grammar School, Whitefield, Manchester, and entered the service of the L.M.S.R. as a premium apprentice in the Chief Mechanical Engineer's Department at Horwich in 1929. Five years later Mr. Tildesley joined the Motive Power Superintendent's Department and after further experience at various depots was appointed Head Office Inspector at Euston Headquarters in 1937. In 1939 he became Assistant District Locomotive Superintendent at Bescot and in 1946 returned to Euston as an Assistant in the Motive Power Department at Headquarters.

Mr. L. G. Morris, M.I.Mech.E., District Motive Power Superintendent, Worcester, Western Region, British Railways, who has been appointed District Motive Power Superintendent, Colwick, Eastern Region, entered the service of the G.W.R. as a premium apprentice at Swindon in 1915. He was commissioned to serve with the Royal Naval Air Service and Royal Air Force in France from 1917 until rejoining the railway as a pupil of the Chief Mechanical Engineer in 1920. Two years later he took up a position in the Drawing Office and he was appointed Locomo-

Mr. J. Leather
Appointed Assistant to the Chief Officer (Paper & Printing), Railway Executive

Mr. M. S. Visvanathan
Who is at present touring British Railways



Mr. Gordon Yates
Appointed Publicity Officer, Hotels Executive

tive Carriage & Wagon Inspector at Old Oak Common in 1924. Mr. Morris became Assistant to the Divisional Superintendent, Chief Mechanical Engineer's Department, London, in 1939, and was appointed Divisional Superintendent, Worcester, in 1946. The position was subsequently redesignated District Motive Power Superintendent.

Mr. A. J. Robinson, Assistant Divisional Superintendent, Cardiff, Western Region, has been appointed District Operating Superintendent, Exeter, Western Region.

Mr. J. H. Eaton, who, until recently was Chief Accountant in East Africa, Overseas Food Corporation, has been appointed Acting Economic Efficiency Officer, London Transport Executive.

Mr. J. Leather, Acting Assistant to the Chief Officer (Paper & Printing), Railway Executive, who has been appointed Assistant to the Chief Officer (Paper & Printing), was educated at Watford Grammar School and entered the service of the L.M.S.R. in 1929 in the Chief Stores Superintendent's Department. In 1930 he was appointed to the staff of the Executive Research Office, Euston, and in 1932 was transferred to the Stationery Stores, Crewe. Returning to Euston, he was engaged in the design and production of railway printing, and in 1935 was made responsible for purchase in connection with all L.M.S.R. Advertising publications. In the recent war Mr. Leather was commissioned in the Royal Air Force, and after service overseas was seconded to the Directorate of Public Relations, Air Ministry, for public relations duties with the Ministry of Information. He returned to the Executive Research Office on demobilisation in 1946, and was appointed Assistant Advertising & Publicity Officer, London Midland Region, 1948. Mr. Leather became Acting Assistant to the Acting Chief Officer (Paper & Printing), Railway Executive, in 1949.

Mr. M. S. Visvanathan, District Signal & Telecommunication Engineer, South Indian Railway, who has been touring British Railways for four months on a United Nations Fellowship, took his degree in engineering at Madras University, India, and from 1929 to 1933 was in this country and Sweden, specialising in electrical engineering. He joined the South Indian Railway as Assistant Signal & Telegraph Engineer in 1940 and subsequently became District Signal & Telecommunication Engineer. On the South Indian Railway Mr. Visvanathan was engaged in the formation of a wireless network with a set of amateur built transmitters and receivers, following the success of which a wireless network has been established on Indian railways; he has also patented a valve relay. Mr. Visvanathan is returning to India early next year.

Mr. Gordon Yates, who, since nationalisation, has been attached to the headquarters of the Hotels Executive for special duties connected with publicity, and, as recorded in our October 6 & 13 issue, has been appointed Publicity Officer to the Hotels Executive, was educated privately and on leaving school joined Furness Withy & Co. Ltd. After further experience he served with the Artists' Rifles and West Yorkshire Regiment during the first World war and following demobilisation in 1919, joined National Trade Press Limited. In 1921, after a period of theatrical management, and on the invitation of Mr. Arthur Towle, he joined the Midland Railway, to take charge of the Cinematograph Theatre at the Midland Hotel, Manchester, and the advertising and entertainments of the Midland Railway hotels. After the 1921 grouping he was appointed Superintendent of Propaganda for the L.M.S.R. Hotels Services. In 1941 Mr. Yates was seconded to the B.B.C., but was recalled to the L.M.S.R. Hotels Services in 1946 and appointed General Assistant to the Chief Hotels Superintendent. Since nationalisation he has been attached to the headquarters of the Hotels Executive for special duties connected with publicity for the hotels, refreshment rooms and restaurant cars of the Executive.

The following are among those recently notified in *The London Gazette* as being appointed His Majesty's Lieutenants within the City of London: Sir Charles J. Hambro, Mr. Edward Holland-Martin, and Major-General Gilbert S. Szlumper.

Mr. H. J. Penn, who has been an Executive Director of Murex Limited, has been appointed Managing Director.

Mr. G. C. Brinkworth and Mr. C. L. M. Smith have been appointed executive Directors of the Gloucester Railway Carriage & Wagon Co. Ltd.

Mr. George Dodson-Wells, Chief Public Relations Officer, London Transport Executive, has been elected a Member of the Church Information Board.

Mr. D. S. Woodley, Technical Director & Chief Engineer, Keith Blackman Limited, has been appointed Deputy Chairman of the company.

We regret to record the death on November 24 at the age of 63 of Sir W. Reardon-Smith, Bt., a prominent shipowner, and from 1943 to 1948 a Director of the Great Western Railway Company.

Mr. D. F. Brown, Managing Director, Westinghouse Brake & Signal Co. Ltd., has been appointed to the board of the Garrard Engineering & Manufacturing Co. Ltd.

Southern Region Appointments

The following appointments in the Labour & Establishment Department of the Southern Region have been announced:—

Mr. J. Lithgow to be Welfare Officer.

Mr. G. V. Metcalfe to be Assistant Welfare Officer.

Mr. W. J. Ruston has been appointed Chairman of Ruston & Hornsby Limited to succeed Mr. J. H. Pawlyn, who is retiring from the board on December 31. Mr. J. R. Bergne-Coupland has been appointed a Director in place of Mr. V. W. Bone, and Mr. T. L. Kendall has been appointed an additional Director.

Major E. C. Dunne, Works Engineer, Coras Iompair Eireann, who, as recorded in our November 24 issue, has resigned to take up an appointment as Assistant Locomotive Superintendent with the Peruvian Railways, joined the Great Southern Railways as a pupil in the Chief Mechanical Engineer's Department, Inchicore Works, in 1933. After serving in Dublin and Limerick, he was appointed Junior Works Assistant, Inchicore Works, in 1938, and following the outbreak of the second World war, he enlisted in the Royal Engineers. He resumed his former position at Inchicore Works in 1946 and was appointed Works Engineer in 1947. Major Dunne has taken a leading part in the establishment of the Irish Transport Officers' Guild and since its inception in 1948 has been Chairman.

Mr. S. E. Osborn has been appointed Chairman and Mr. F. A. Hurst, Deputy Chairman, of Samuel Osborn & Co. Ltd. Mr. Hurst will continue in his present office of Managing Director and Mr. B. C. Pye-Smith has been appointed a Director of the company.

Mr. A. J. Taylor, Director & General Manager of Benn & Cronin Limited, has been appointed Chairman and Managing Director of the company, following the death of Colonel J. A. S. Gray. Mr. Taylor joined the company in 1910, two years after its incorporation, and he has been responsible for the design and patents used in the development of the train indicators in use at stations on British Railways.

Southern Railway Association

The third annual reunion dinner of the Southern Railway Association was held on December 6 at the Charing Cross Hotel, London. The Association, which was originally 55 members strong, and has now been reduced to 53 by the deaths of Sir Herbert Walker and Mr. George Ellson, brings together once a year the Directors and Chief Officers of the Southern Railway, who were in office immediately before nationalisation, and a number of Chief Officers, who had retired earlier from the service of the Southern Railway. Among those present were: Colonel Sir Eric Gore Browne, last Chairman of the Southern Railway Company; Sir Eustace Missenden, lately General Manager, Southern Railway, and present Chairman of the Railway Executive; Sir Francis Dent, a former Director; and Mr. John Elliot, who, in 1947 assumed the duties of General Manager, Southern Railway, and is now Chief Regional Officer of the London Midland Region of British Railways. Mr. C. P. Hopkins, Chief Regional Officer, Southern Region, British Railways, attended the dinner as guest of the Association.

British Railways Research Organisation

Consequent on the organisation of a single Research Department for British Railways, to which further reference is made on page 505 of this issue, the following appointments have been made:—

Mr. T. Baldwin, Senior Assistant (Engineering), Scientific Research, Derby, to be Superintendent (Engineering Division).

Mr. T. H. Turner, Chief Chemist and Metallurgist, Mechanical and Electrical Engineering Department, Doncaster (E. and N.E. Regions), to be Superintendent (Metallurgy Division).

Mr. T. A. Eames, Senior Physicist, Scientific Research Department, Derby, to be Superintendent (Physics Division).

Mr. F. Fancutt, Paint Technologist, Scientific Research Department, Derby, to be Superintendent (Chemistry Division).

Mr. C. G. Winson, Textile Technologist, Scientific Research Department, Derby, to be Superintendent (Textile Division).

Mr. M. G. Bennett, Manager, General Research Department, Euston, to be Superintendent (Operational Research Division).

The appointment of a Superintendent (Protective Coatings Division) has not yet been announced.

Ministry of Transport Accident Report

Boarer's Manor Way Crossing, Southern Region, British Railways: April 24, 1950

Colonel R. J. Walker, Inspecting Officer of Railways, Ministry of Transport, inquired into the accident that occurred at 5.28 p.m. on April 24, 1950, at Boarer's Manor Way occupation level-crossing between Belvedere and Abbey Wood stations, Southern Region, when a motor-lorry was run down by the 5.21 p.m. up electric train. Slades Green to Cannon Street, which had reached a point about 50 yd. from the crossing and was travelling at about 45 m.p.h. when the vehicle moved in front of it from the down side.

The motorman had no time to stop and the train struck the rear of the lorry and destroyed it. Its three adult occupants sustained multiple injuries, from which they recovered, but an infant in arms was fatally injured. The 5.9 p.m. down electric train, Cannon Street to Gillingham, also was approaching, but was stopped short of the crossing. There was drizzling rain and visibility was limited to about 400 yd.

The Crossing

The crossing is protected by single field type gates closing only against the road. They have self-closing latches and are intended to be fastened when not in use. Visibility along both lines is very good and on the down side a road vehicle driver can see the line clearly in both directions, but on the up side needs to alight and approach closer to obtain an unobstructed view of the up line. There are the usual warning notices relating to such crossings, with boards saying "Stop, look and listen." "Beware of the trains." "Keep this gate shut; penalty 40s.," and conductor rail warnings.

The legal status of the crossing as an occupation one has remained unchanged since it was first determined as such by the South Eastern Railway Act of 1846, and when it was constructed passage of vehicles and pedestrians was negligible. Of late years, however, a large semi-permanent gipsy encampment has grown up on one side to which there is no other approach and traffic has become considerable. The railway traffic also is large; there are 218 passenger and 24 freight trains daily. Speeds of these trains are relatively high.

The authorities have found it impossible to enforce the closing of the gates and they are frequently left open. There have been 18 accidents—12 of them fatal—in the past 24 years and the place is a constant source of anxiety to the motormen on the trains.

Evidence

The signalman at Belvedere Station saw the up train stop in the section. He had been there for two years and looked on the crossing as a bad one. Although there had been no accident during that period there had been occasional trouble from horses straying on the line.

The motorman of the up train said that he whistled on approaching the board 155 yd. in rear of the crossing and until he had passed it. He noticed no one approaching on the road, but his attention was mainly directed to the Abbey Wood distant signal at caution. When he saw the lorry come on the line he released the dead man's handle and took cover beneath the front of the cab. His train had eight cars and stopped with the last on the crossing. He himself had experienced no real trouble at the place, but knew it to have a very bad reputation among motormen, who nearly all had had narrow escapes at some time or other. The Abbey Wood distant signal 320 yd. beyond the crossing was not always easy to see against its background of trees in dull weather, particularly with spring foliage. It was necessary sometimes to look for it rather closely.

The motorman of the down train was travelling at about 45 m.p.h. and at about 250 yd. saw the lorry commence to move across from the down side. He made an immediate brake application and stopped clear. He was whistling when he saw the vehicle, but had not yet reached the board. It was not the practice, however, to wait until he did so before whistling. The crossing caused worry to the motormen and people used it very carelessly. He had experienced "quite a number of shocks, especially in foggy weather."

There was a passenger in the lorry with his wife and child, being taken from the encampment side of the line to the station. He said the near gate was closed when they reached the crossing, but the far one was open. He alighted and opened the near one and, he said, then stood between the up and down lines, looked each way and listened and, as everything appeared to be clear, beckoned to the driver to cross, and walked back to close the gate.

Looking up he saw the train almost on the crossing. He thought the lorry was hit on the tail after the last wheel had passed off the rails. He was quite sure he stood for some moments between the rails before signalling to the driver and was emphatic that he saw and heard nothing while he did so. Visibility was, he thought, considerably less than 400 yd. on account of the rain.

His wife corroborated this evidence, but did not know anything of the accident until it had happened, nor did she see the train approaching.

Inspecting Officer's Conclusion

The driver of the lorry moved on to the crossing before assuring himself that it was safe to do so and the motorman had no chance to stop, but did all he could in the circumstances. It is probable that the train was little more than 400 yd. away when the lorry passenger looked up and down the line, although difficult to see on account of the bad weather. It would thus have taken 20 sec. or less to reach the crossing and the lorry might well have taken this length of time to move to the point where the collision occurred. Possibly the driver's view to the left—towards the oncoming up train—might have been obstructed by rain on the window, or by the passenger's wife beside him. Possibly also on moving on the crossing he was startled and his attention attracted by suddenly catching sight of the down train approaching on his right. Unfortunately Colonel Walker was unable to obtain his evidence to confirm these suppositions, though he has no doubt that something very much of this nature must have occurred. The accident was thus caused by lack of caution on the part of the driver, coupled with the prevailing poor visibility.

This crossing is a constant source of danger to road and rail traffic and in foggy weather its passage cannot be anything but hazardous for all concerned. The risk of derailment by collision with a road vehicle is accentuated by the comparatively light axle loads of multiple-unit electric trains and the anxiety felt by motormen can be well understood. Due to the growth of the encampment the crossing has become public to all intents and purposes, although its legal status has not changed since 1846. Responsibility on the part of the railway is limited to the provision of field type gates and safe and adequate decking of the roadway. The responsibility of the owner of the land is to keep the gates fastened when not actually in use.

Rudimentary Protection

Such rudimentary protection is completely out of relation to the present extent of the road and rail traffic and, in Colonel Walker's opinion, nothing less than equipping the crossing to public standards and appointing a gatekeeper will make the protection adequate. Unless this is done, or the crossing is restored to its original purpose by the removal of the gipsy encampment the risks to road and rail will remain and may well increase. This crossing has an especially bad record and the need for improvement is apparent. Colonel Walker therefore recommends that, without prejudice to consideration of the general question of accommodation and occupation crossings, remedial measures should be taken without delay by the local authorities and the Railway Executive in conjunction with any other parties who may be concerned.

This is the particular position at Boarer's Manor Way, but it is no more than one example of many occupation and accommodation crossings throughout the country, where serious risks have developed through alterations in the character and extent of road user and speed and frequency of trains.

The law, however, has lagged behind in that it still lays no specific obligation on any of the parties concerned to provide and pay for the added protection which increased risks demand. This accident has indeed served once more to draw attention to the need for a fundamental and comprehensive review of the whole conception of crossings of this nature.

The British Transport Commission has recently done this and submitted a report to the Minister of Transport. The question is, however, complex and formidable, and many other aspects and authorities remain to be considered. Nevertheless, great though the difficulties may be, the problem is urgent and in the interests of the safety of both rail and road users alike its solution should not be delayed.

HEENAN & FROUDE RESULTS.—The directors of Heenan & Froude Limited propose a final dividend on the ordinary shares of 10 per cent., making 15 per cent. (same) for the period from September 1, 1949, to September 2, 1950, and a free bonus issue of one new ordinary share for every ten existing shares held. The group net profit was £327,358 (against £242,546), less £193,097 (£140,444) tax.

British and French Passenger Services

A comparison of scheduled runs at 55 m.p.h. and over

We are indebted to a correspondent for the following table of comparison of British and French scheduled runs at 55 m.p.h. and over, start to stop. The data given below are compiled from the Summer 1950 timetables:

	60 m.p.h. and over		58 m.p.h. and over		55 m.p.h. and over	
	Miles	Runs	Miles	Runs	Miles	Runs
British Railways						
Region :						
Western	—	—	—	—	1,080	9
North Eastern	44	1	352	8	880	20
London Midland	—	—	—	—	748	17
Eastern	—	—	—	—	686	4
Southern	—	—	—	—	601	19
Scottish	—	—	—	—	502	9
	44	1	352	8	4,597	78
French Railways						
Region :						
South Eastern and Medit'n ...	4,593	51	5,303	63	8,430	160
South Western	1,829	21	4,324	60	7,497	116
Western	2,758	29	4,388	55	6,747	98
Northern	715	9	1,398	17	3,192	33
Eastern	1,939	16	2,282	21	2,821	35
	11,834	126	17,695	216	28,687	442
Type of Traction :						
Electric	6,479	61	10,206	115	15,843	250
Diesel	4,525	58	5,627	83	6,854	126
Steam	830	7	1,862	18	5,990	66

The majority of the French runs are subject to an overall speed limit of 75 m.p.h., which is less than that in force on certain sections of the principal British main lines. The greater part of the French high-speed mileage is electrically operated (the British runs include fifteen electrically-operated on the Southern Region, totalling 337 miles) but the French steam mileages are in excess of our own. The French high-speed schedules are normally maintained with a high degree of punctuality as a result of the time recovery bonus system in force, with acequate safeguards against reckless running in the provision of recording speedometers on the locomotives.

In the table below are compared the best journey times between London and the principal British provincial cities with those from Paris to the provincial cities of France.

It will be seen from these figures that the general level of speed between Paris and the French provincial cities listed is higher than that between London and the principal British provincial cities. It may, perhaps, be mentioned that long sections of the Paris-Toulouse and Cherbourg routes are severely graded, which helps to explain the relatively slower overall speeds to these places.

Whilst it could hardly be claimed that the S.N.C.F. have yet approached the ultimate in scheduled speeds over its main lines it seems that the recovery achieved within five years points to management and direction of exceptional ability. The large numbers of fast cross-country, and branch railcar services appear to be scheduled with ingenuity to provide good connections with main line trains.

Great Britain

London to	Distance	Fastest time	Intermediate stops	Average speed
	Miles	hr. min.		M.p.h.
Birmingham	113·0	2 15	1	50·2
Bristol	117·6	2 15	—	52·3
Cardiff	145·9	3 —	1	48·6
Edinburgh	392·7	7 40	—	51·2
Glasgow	401·4	8 13	1	48·8
Grimsby	155·1	3 39	5	42·5
Hull	196·9	3 56	2	50·2
Leeds	185·8	3 39	—	50·4
Leicester	99·1	1 58	—	50·6
Liverpool	193·7	3 45	1	51·5
Manchester	188·9	3 38	—	51·9
Newcastle	268·3	4 53	1	54·7
Nottingham	123·5	2 29	—	49·6
Plymouth	225·7	4 30	2	50·3
Sheffield	158·3	3 41	3	43·0
Swansea	191·7	4 10	2	46·0

France

Paris to	Distance	Fastest time	Intermediate stops	Average speed	Traction
	Miles	hr. min.		M.p.h.	
Basle...	325·8	5 25	2	60·1	Diesel railcar
Brussels	192·3	3 30	1	54·9	Steam
Bordeaux	359·7	5 40	2	63·5	Electric
Brest	386·3	7 56	10	48·8	Electric (131 miles), steam (255)
Caen...	148·5	2 22	2	63·0	Diesel railcar
Calais (Maritime) ...	184·4	3 10	—	58·2	Steam
Cherbourg	230·5	5 10	5	44·6	Steam
Clermont Ferrand	260·6	4 16	5	61·0	Diesel railcar unit
Le Havre	141·5	2 8	1	66·3	Diesel railcar unit
Lille	155·9	2 30	2	62·4	Diesel train
Lyons	317·3	4 55	—	64·5	Diesel train
Nantes	245·9	4 22	2	56·3	Electric (131 miles), steam (115)
Marseilles	534·9	9 59	5	53·6	Steam (436 miles), electric (99)
Rouen	86·6	1 16	—	68·5	Diesel railcar unit
Strasbourg	312·2	5 15	2	59·4	Steam
Toulouse	442·8	8 50	5	50·2	Electric

Festival of Britain Train Arrangements

British Railways will run five special Festival of Britain trains next year, formed of the first of the new standard corridor coaches and dining cars now being built, these named trains being:—

"Red Rose": 12.5 p.m., Euston to Liverpool; 5.25 p.m., Liverpool to Euston

"Heart of Midlothian": 2.0 p.m., Kings Cross to York and Edinburgh; 2.0 p.m., Edinburgh to York and Kings Cross

"Merchant Venturer": 11.15 a.m., Paddington to Bath and Bristol; 5.25 p.m., Bristol to Bath and Paddington

"William Shakespeare": 10.10 a.m., Paddington to Stratford-on-Avon and Wolverhampton; 7.23 p.m., Wolverhampton and Stratford-on-Avon to Paddington

"Royal Wessex": 7.38 a.m., Weymouth to Bournemouth and Waterloo; 4.35 p.m., Waterloo to Bournemouth and Weymouth

In addition, the up and down "Royal Scot" and the "Norfolkman" will also be formed of new stock, while the "Thanet Belle," which will serve Canterbury next summer, will be re-named the "Kentish Belle." A modernised "Golden Arrow" train with new Pullman cars will operate between London and Dover.

During the Festival additional late night services will be provided from London to destinations in the Southern Region and the following trains will be introduced during the week commencing March 19, 1951:—

12.0 Midnight every night from Victoria to Brighton (buffet car) with connections for Eastbourne, Hastings, and Worthing

12.5 a.m. every Wednesday night from Charing Cross to Ashford, Folkestone, Dover, and Deal

12.5 a.m. every Thursday night from Charing Cross to Canterbury, Faversham, and the Kent Coast

12.15 a.m. every Saturday night from Victoria to the Kent Coast

11.55 p.m. every Wednesday and Saturday night from Charing Cross to Sevenoaks and Tunbridge Wells

RAILWAY STUDENTS' ASSOCIATION DINNER.—The annual dinner and dance of the Railway Students' Association, London School of Economics & Political Science, was held in the London Transport Executive Dining Club, South Kensington, on December 1. A reception by Mr. John Elliot, President of the Association and Chief Regional Officer, London Midland Region, preceded the dinner, and among those present were: Mr. John Benstead, Past-President of the Association and Deputy Chairman, British Transport Commission; Sir Osborne Mance, Past-President of the Association; Messrs. L. C. Hawkins, Vice-President of the Association, and Member, London Transport Executive; B. W. C. Cooke, Editor, *The Railway Gazette;* A. J. Webb, General Superintendent (Staff & Training) Railways, London Transport Executive; D. H. Coombs, Chairman of Committee of the Association. The toast "The Ladies and Visitors" was proposed by Mr. Elliot and responded to by Mr. Cooke.

Rubber-Asphalt Platform for York

Quieter working and longer life expected

The north end of platforms 7 and 8 of York Station, 1,704 ft. in length, has been resurfaced with a rubber-asphalt carpet. This new surface consists of a normal bituminous macadam 1 in. thick containing ¼-in. steel slag chippings with the addition of a small quantity of flocculated latex crumb or rubber powder. Some 2,000 sq. yd. of platform has been treated and the new surface has been laid over existing concrete slabs.

These platforms carry considerable mail traffic, and the constant jolting of the wheels of mail trucks has in the past tended to produce potholes and breaks in the surface, which in turn has meant heavy maintenance work. With the new type of platform it is anticipated that this trouble will not arise—nor will there be nearly as much noise.

Another advantage that the new surface offers is reduced slipperiness. Adding rubber to asphalt surfaces has been found to reduce skidding on roadways, and there is every reason to suppose that this will be equally true of railway platforms. Rubber-asphalt roadways, moreover, are believed to have far longer wearing qualities than ordinary asphalt.

The material has been made, and the work of laying carried out, by the firm of Crowley Russell & Co. Ltd., Castleford, Yorkshire, who have collaborated with the British Rubber Development Board.

The work, carried out under the supervision of Mr. E. L. Triffitt, District Engineer, British Railways, York, to the instruction of Mr. J. Taylor Thompson, Civil Engineer, North-Eastern Region of British Railways, was completed in less than three days, and no interruption to normal working occurred while the new surface was laid down.

One stretch of this type of rubber-asphalt paving has been laid in Holland for 12 years outside Rotterdam, and was heavily used during the recent war. Today this is in excellent condition and has required no maintenance.

Hamburg-Copenhagen Direct Route

In our issue of July 7, 1950, we referred to long-standing proposals for a direct road and rail connection between Copenhagen and Hamburg, which would reduce the journey by several hours, following an almost straight line across the Danish island of Lolland and the German island of Fehmarn (Femern).

In Denmark the necessary road and rail links between the islands are already in being, and the Lolland port of Rodby can be converted into a ferry harbour; on the German side a ferry harbour at Puttgarden and the substitution of a bridge for the existing road and rail ferry across Fehmarn Sound, between Fehmarn and the German mainland, are planned; but the last-named work is a major undertaking and cannot be begun for some time.

In our Danish contemporary, *Ingenioren*, of October 7, 1950, a Danish civil engineer, Mr. V. E. Lundsfryd, advocates the new route, but on an "austerity" basis, without construction of a bridge over Fehmarn Sound, and several other works. All that would be necessary would be construction of ferry berths at Rodby and Puttgarden, and provision of two ferry boats for the crossing, conveying both rail and road vehicles.

His tentative design provides for ferry-boats which could take either one "Lyntog" (five-car multiple-unit diesel-electric train) with 20-30 motor cars, or ten bogie vehicles. The diesel train and road vehicles would run on and off under their own power, as in existing Danish rail ferries. In addition, a railway line 4½ miles long would be required from Burg to Puttgarden, on the island of Fehmarn, and a short connecting loop on the German Federal Railways near Lütjenbrode. Even so, the Copenhagen-Hamburg journey time could be reduced to just under nine hours, compared with the eleven hours of the route *via* the Great Belt ferry and Fredericia.

Questions in Parliament

East African Railways & Harbours

Colonel A. D. Dodds-Parker (Banbury—C.) on November 29 asked the Secretary of State for the Colonies what action was being taken to attract industry to use the electricity supply from the Owen Falls Dam (Uganda).

Mr. J. Dugdale (Minister of State for Colonial Affairs): Discussions have been held, and continue, between Uganda Government representatives and firms likely to be interested in establishing themselves in Uganda.

Mr. G. Beresford Craddock (Spelthorne—C.): Will the Minister say if consideration is being given to the electrification of the Kenya Uganda Railway, utilising power from the Owen Falls?

Mr. Dugdale: That is another question.

Parliamentary Notes

Damage to Railway Freight

Mr. C. J. Alport (Colchester—C.) on the motion for the adjournment of the House of Commons on December 1 raised the subject of damage to railway freight; his immediate reason for raising the matter was evidence of loss supplied by a Colchester firm, which this year alone had more than 200 claims against British Railways. In 1948, the total value of claims against the railways was £3,857,000; in 1949 it was £2,864,000. He asked the Minister of Transport what progress had been made during the past year in improving the handling of freight and parcels, and whether the figure for 1950 would be an improvement.

The various causes included the railways' loss of experienced manpower in the last 10 years; but he would like to know what steps had been taken towards mechanisation and modernisation of methods, as stated in the B.T.C. 1949 report. He himself had seen no indication of any change since before the war. Damage also took place in marshalling yards. He was informed by the B.T.C. that it was intended to introduce shock-absorbing wagons; he asked what steps had been taken to implement that policy.

The third reason for extensive damage was the speeding up of unloading at stations; there was a good case for re-timing some services, with more time at stations for unloading. Another reason was the conditions in parcels offices.

Mr. Alfred Barnes (Minister of Transport) said many of the problems mentioned were no new thing. The figures mentioned covered not only damage but also loss and pilfering, and on the total there was a reduction of some 30 per cent. in 1949 over 1948. The figures of freight damage were encouraging. In 1947, the value of the claims the railway companies had to meet was £1,100,000. In 1949 it had declined to £1,000,000. Prices were still rising in those years and, therefore, that represented an improvement of well over 10 per cent. on direct freight damage. The necessity to restrict capital investment had prevented British Railways from carrying out many improvements; the bulk of expenditure had had to be directed to repairing war damage and exhaustion of railway stock, which would have applied even if the railways had been under private enterprise.

Among the improvements introduced had been increasing use of containers. Some 3,000 shock-aborbing wagons had already been built, and many more were on order. Others were to follow to deal with earthenware goods. In addition, special cradles for conveying sheet and plate glass had been designed. As to the handling of parcels at stations, the Railway Executive had introduced fully freight express train services running mainly between producing and distributing centres so as to give one-day delivery, and provided staff lectures on claim prevention; and there was also an educational training scheme for station staff. Mr. Barnes also drew attention to the part played by faulty packaging, and the steps taken by British Railways to advise traders regarding this. Knowing the railways' difficulties, he must say that the inroads they had made into the total of claims had been encouraging; he was sure that the discussion they had had that afternoon would further emphasise the importance of the question.

Transport (Amendment) Bill

Moving the second reading of the Transport (Amendment) Bill in the House of Lords on November 21, Lord Teynham said it was intended to remedy certain defects which had become apparent in the working of the Transport Act, and to provide that competition between the nationalised industry and the haulage undertakings should be fair.

The intention of the Transport Act was to transfer long-distance road haulage to the B.T.C. and leave short-distance to the independent road hauliers, but as the Transport Act was now being administered much short-distance haulage had passed into the hands of the Commission. The B.T.C. was free to operate without any licence or control of its activities, and could squeeze out any short-distance private haulier by placing an unlimited number of vehicles on the road in any area at any one time. The independent haulier had to obtain a licence for any vehicle on the road, and the licensing authority was required to have regard primarily to the interests of the public and the number of vehicles.

The Bill would enable the licensing authority to determine whether it would be in the public interest for more vehicles, owned either by the B.T.C. or an independent haulier, to be placed on the roads; in dealing with licence applications neither the licensing authority nor the Transport Tribunal would give undue preference to the B.T.C. As it was, many "A" and "B" licence holders were being driven out of business, because of the 25-mile radius allowed them under the 1947 Act, which prevented their meeting efficiently the demands of their clients. Such hauliers had

to go to the Road Haulage Executive, their competitors, for permits to go outside the 25-mile radius limit, and often their requests were refused, and the Road Haulage Executive did the job at a much higher cost. Many "A" and "B" licences were now to be revoked or subject to modification in an attempt to eliminate competition by independent hauliers.

Lord Lucas of Chilworth (Parliamentary Secretary to the Ministry of Transport) asked the House to reject the Bill on three main grounds; first, because it completely wrecked the Transport Act of 1947; secondly, because the Bill was impossible while the Transport Act was on the Statute Book; and, thirdly, because it jettisoned the interests of the taxpayer in favour of a sectional interest.

There were now 19,000 "A" licensees with 57,000 vehicles, and 32,000 "B" licensees with 62,000 vehicles. So 51,000 operators with 119,000 vehicles would be able to compete, if the Bill became law, each in a radius of up to 60 miles, with the B.T.C. fleet of 40,000, in a monopoly for which the British taxpayer had paid over £70,000,000. To those competitors could be added anyone who could get a licence, not from the monopoly holder, but from the licensing authority, without a penny of payment to the Commission, who purchased the monopoly on behalf of the taxpayer. Under the Bill an "A" contract licence holder already bought out and paid compensation for assets and goodwill had only to go to the licensing authority with contracts in his hand and he would immediately receive a licence, without the payment of one penny. If 50 or 60 miles had been in the Transport Act the B.T.C. would not have paid a penny for any monopoly, because there would have been no monopoly at all or, at best, a worthless one. Also, there would have been no integration.

There would be no chance of ever getting an integrated charges scheme for long-distance haulage by road and rail if this Bill became law, taking the vast bulk of road haulage out of the control of the Commission and out of the scope of any charges scheme. It would put the Road Haulage Executive in exactly the same position as the railway companies were before the war. It would start the dogfight all over again, which nearly ruined the transport industry of this country—with one difference, that the Bill sought to muzzle one of the dogs, the B.T.C.

Lord Monkswell said that on a ton-mile or passenger-mile basis, the railway traffic probably was at least three times as great as the road traffic of the whole country, and he outlined the advantages of railways as efficient carriers, over other forms of transport. He also drew attention to their statutory obligations regarding lower-rated, bulky traffic.

Lord Swinton said that the B.T.C. did not buy a monopoly at all with the £70,000,000 it had paid hauliers; they bought the businesses of so-called long-distance hauliers, of whom many happened to be short-distance hauliers. It paid, not for a monopoly, but from two to five years' purchase of the profits which hauliers in keen competition had made in the past.

Viscount Addison, Lord Privy Seal, replying for the Government, said the principal Act was not yet fully in operation. The B.T.C. had not yet acquired the various undertakings which it was required by the Act to acquire. It was specifically provided that the Commission was to be a monopoly, and the Act probably did relate to the cream of the business. One of its main purposes was to integrate all transport and bring businesses into the common pool. The taxpayer was committed at present to an expenditure of some £70,000,000 for buying out concerns undertaking long-distance road services. The Bill proposed that the most profitable part of transport should be taken from the Commission and run by somebody else. It would make the business of the Transport Commission as a self-supporting concern a practical impossibility.

On a division, the second reading of the Bill was carried by 65 votes to 32.

Staff & Labour Matters

Engineers' Wage Claim

The recommendations of the National Arbitration Tribunal, referred to in our November 17 issue, were on November 28 accepted by the Engineering & Allied Employers' National Federation and by the C.S.E.U. The new rates will be retrospective to the first full pay period after November 13.

Contracts & Tenders

The following contracts have recently bene placed by the Canadian Pacific Railway, in addition to the order for 2,000 50-ton all-steel box cars referred to on page 485 of our last week's issue:—

Canadian Car & Foundry Co. Ltd., Montreal: 900 50-ton all-steel box cars; 350 automobile cars; 100 flat cars.

National Steel Car Corporation, Hamilton, Ont.: 300 50-ton all-steel box cars; 350 refrigerator cars; 50 covered hopper cars.

Eastern Car Company, Trenton, N.S.: 300 drop-end gondola cars; 225 longitudinal hopper cars.

The Egyptian State Railways, Telegraphs & Telephones have recently placed the following contract:—

Henschel & Sohn G.m.b.H. (London Representatives: Welmec Corporation, 147, Strand, W.C.2): 40 2-8-0 goods locomotives.

This is in addition to the order placed with The Vulcan Foundry Limited, and referred to in our October 27 & 27 issue.

The India Store Department has recently placed an order with Henschel & Sohn G.m.b.H. for 49 "HSM" type superheated coal-burning boilers for "HS" class 2-8-0 goods locomotives.

Robert Stephenson & Hawthorns Limited are building six "ML" class 2-8-2 locomotives for Tanganyika under an order which has been placed by the Crown Agents for the Colonies with the Vulcan/Stephenson Group.

Presentations to Railwaymen

Mr. John Elliot, Chief Regional Officer, London Midland Region, making a presentation to Mr. P. Bond, Goods Clerk, Liverpool, for prompt aid to a foreman trapped between a wall and a moving wagon

Mr. A. E. Hammett, Commercial Superintendent, London Midland Region, making a presentation to Mr. F. Houghton, Freight Rates Assistant, on the occasion of his retirement after 45 years of service

Notes and News

London Transport Executive.—Applications are invited for a post of temporary general technical assistant in the drawing office of the civil engineer (maintenance) for the design of steel and reinforced concrete structures. See Official Notices on page 531.

L.M.R. London Orchestral Society.—British Railways, London Midland Region (London), Orchestral Society is giving a Christmas concert on December 15 at 7.15 p.m. in the Friends' House, Euston Road, London, N.W.1. In addition to orchestral works by Saint-Saens, Haydn, and Beethoven, there will be carols by St. Michael's (Harrow) Girls' Choir.

Signal Box at Agecroft Junction, L.M.R.—An article in our issue of November 24, describing a new signal box at Agecroft Junction, L.M.R., referred to the use of plastics in the construction of the lever handle covers and the illuminated track diagram. We have been informed that the materials for the lever handle covers were supplied by British Celanese Limited and fitted by the L.M.R.

Vacancies for Professionally Qualified Engineers.—Applications are invited for the following vacancies on the Western Australian Government Railways:—Railway Engineers (Civil Engineering Branch), Engineers, Classes II and III, Assistant Engineers, Classes I, II and III. Mechanical Engineers (Mechanical Branch), Assistant Engineers, Classes I and II. See Official Notices on page 531.

Inspection of Derby and Toton Marshalling Sidings.—On November 28, Sir Eustace Missenden, Chairman, Railway Executive, accompanied by Mr. J. W. Harrington, Chief Officer (Administration); Mr. J. Ness, Chief Officer (New Works); and Mr. John Elliot, Chief Regional Officer, London Midland Region, visited Derby and Toton marshalling sidings. They first visited the School of Transport in Derby where they saw classes in progress and talked with the students. At Toton marshalling sidings they saw the progress made on the new mechanisation scheme which is nearing completion. The visitors also inspected Toton Motive Power Depot. Among the party were the following L.M.R. officials: Mr. J. W. Watkins, Operating Superintendent; Mr. F. W. Abraham, Motive Power Superintendent; Mr. J. Briggs, Chief Civil Engineer; Mr. George Dow, Public Relations & Publicity Officer; Mr. H. G. Ivatt, Chief Mechanical Engineer; Mr. L. P. Ball, Divisional Operating Superintendent, Derby; Mr. O. E. Kinsman, Divisional Motive Power Superintendent, Derby; Mr. R. North, District Operating Superintendent, Nottingham; Mr. W. B. Carter, District Commercial Superintendent; and Mr. G. J. Aston, District Operating Superintendent, Derby.

Railway Collection and Delivery Services.—British Railways, Scottish Region, announce that, as from December 4, the collection and delivery of rail-borne traffic by British Road Services (the Douglas and Wallace groups which were formerly Wordie & Company and Cowan & Company) in Glasgow was taken over by the Railway Executive. Orders for cartage of goods train traffic and parcels by passenger train are being accepted at the local railway stations.

Named Train Posters.—The Southern Region "Brighton Belle" and "Golden Arrow" are depicted in the latest named-train posters for British Railways, and as in the case of the "Inter-City" and "Midlander" posters referred to in our November 24 issue, have been produced and issued by the London Midland Region Public Relations & Publicity Department. The preceding posters in the same series, showing the "Flying Scotsman," "Royal Scot," "Mid-Day Scot," and "Capitals Limited," were also produced by the London Midland Region and are believed to be the first railway designs in which scraper board was used.

Christmas Train Services.—On Saturday, December 23, British Railways will run a normal weekday service with many extra trains and on Sunday, December 24, the Sunday service will be augmented as necessary. There will be a modified Sunday service on Christmas day and on Boxing day there will be a modified weekday service (Sunday service in the Southern Region) with many extra trains during the evening for return traffic. Restaurant and buffet car facilities will be maintained in regular long-distance trains, and seats reserved in many regular and special services. Sailing tickets will be required by passengers travelling to Ireland *via* Holyhead - Dun Laoghaire (Kingstown) from December 21 to 24 inclusive; *via* Fishguard - Cork on December 21 and 23 and *via* Liverpool - Belfast and Liverpool - Dublin on December 21 and 22. There will be an additional sailing from Fishguard to Rosslare on Thursday night, December 21.

N.E. Region Informal Staff Conference.—The ninth informal Staff Conference in the North Eastern Region was held at Sunderland on November 24, and was presided over by Mr. H. A. Short, Chief Regional Officer, North Eastern Region.

Passenger-Operated Doors on the Metropolitan.—London Transport introduced on November 20 the passenger opening of doors on modern stock in the Metropolitan Line Uxbridge service. This system, already in use on the Central, Bakerloo and Northern Lines, reduces the opening of doors in bad weather. Passengers open individual doors by means of push-button switches although the closing of doors remains under the control of the guard.

Liverpool Overhead Railway Traffics.—There was a decrease in receipts on the Liverpool Overhead Railway in each week in September compared with last year. The largest decrease, £237, was for the week ended September 24, when receipts totalled £2,469, and the smallest, £29, in the week ended September 3, when receipts were £2,637. Aggregate receipts to September 24 amounted to £97,654 compared with £104,602 in the corresponding period last year.

Silicones: A New Synthetic Material.—The use of silicones was demonstrated in London recently by E. R. Howard & Co. Ltd., of Stowmarket. Silicones are a class of synthetic materials, and are available in many forms, including fluids with low viscosity change, over a wide temperature range, greases, insulating resins, lubricants, and silicone rubber. The materials have a wide range of application and it is claimed that Silastic rubber remains flexible at −110° F. and at 500° F. and that electric motors insulated with silicone resins and varnishes will give good service at 400° F. and capable of withstanding exposures to temperatures as high as 570° F. Another silicone product, Autobrite, when applied to motorcars or road transport vehicles, produces, it is claimed, a glass hard surface impervious to moisture or heat, and is a protection against rust or oxidisation.

Railway Benevolent Institution.—The report for the year ended June 30, 1950, of the Railway Benevolent Institution shows that 7,174 persons were assisted, at a cost of £58,637; in addition, £3,017 was expended on "Boxhurst," the home for old people at Dorking, and £22,219 on the orphanage at Derby and purposes connected therewith, which maintain and educate 204 children. Total income was £94,449; that of the orphanage was £22,196 (of which some £16,000 was accounted for by donations and subscriptions), and that for the other commitments of the Institution £72,253 (of which donations and so on supplied some £32,000). The balance in hand was £194. The Institution suffered

At the Toton marshalling yard on November 28, left to right, Mr. J. W. Watkins, Operating Superintendent, London Midland Region; Sir Eustace Missenden, Chairman of the Railway Executive; Mr. W. Lander, Yardmaster; Point Operator C. Windmill; and Mr. John Elliot, Chief Regional Officer, London Midland Region (see paragraph above)

OFFICIAL NOTICES

Western Australian Government Railways

VACANCIES FOR PROFESSIONALLY QUALIFIED ENGINEERS

APPLICATIONS are invited for the following vacancies:—

RAILWAY ENGINEERS (Civil Engineering Branch).

	Salary range per annum
Engineer, Class II	£900-925-950
.. .. III	£840-865-890
Asst. Engineer, Class I ..	£765-790-815
.. .. .. II ..	£665-690-715-740
.. .. .. III ..	£620-640

Engineers Class II and Class III must have experience in open line track maintenance and construction.

MECHANICAL ENGINEERS (Mechanical Branch).

	Salary range per annum
Asst. Engineer, Class I ..	£765-790-815
.. .. .. II ..	£665-690-715-740

The Assistant Engineers (Mechanical) are required in Drawing Office staff and must be fully experienced in design of locomotives or cars and wagons. Full particulars of drawing office experience to be stated. All salaries are in Australian currency. *Note.*—Salaries and conditions of employment are governed by the Award of the Commonwealth Court of Arbitration to the Association of the Railway Professional Officers of Australia. All salaries quoted are comprised of margins plus present basic wage which is expected to increase by approximately £50 per annum in December, 1950, as a result of impending new basic wage declaration. Salary margins are also under review by Arbitration Authority and may appreciably increase shortly. Applicants should be Associate Members of the Institute of Civil or Mechanical Engineers, or hold a University degree in engineering, but equivalent qualifications will be considered. Applicants should specify position desired and if willing to accept lower grades advertised. Subject to satisfactory service advancement in range is yearly. In the grades of Assistant Engineer promotion is automatic to the maximum of Assistant Engineer, Class I, for Chartered Engineers, and to Class II for lesser qualifications. Free sea passage to Western Australia will be arranged for successful applicants, also dependants, and half pay allowed from departure from United Kingdom to arrival in Western Australia. Departmental medical examination must be passed before leaving United Kingdom. Housing accommodation in newly constructed modern Government rental houses will be arranged for married appointees with family. Railway Officers from Western Australia are available at Savoy House for interview by arrangement. Applications (in duplicate) should be addressed to the AGENT GENERAL FOR WESTERN AUSTRALIA, Savoy House, Strand, London, W.C.2, and reach him not later than Wednesday, January 3, 1951. Applications must be accompanied by copies of three testimonials as to character and include a clear and concise statement of age, nationality, dependants, academic qualifications and experience, particularly railway experience, also war service (if any).

LONDON TRANSPORT EXECUTIVE. Applications are invited for a post of temporary General Technical Assistant in the Drawing Office of the Civil Engineer (Maintenance) for the design of steel and reinforced concrete structures. Applicants should have an Engineering Degree or Higher National Certificate or be well advanced in a course of study for these qualifications. Previous drawing office experience would be an advantage. Commencing salary will be according to age and experience up to £420 per annum with additional payments for certain recognised qualifications. The appointment is subject to a medical examination. Canvassing, either directly or indirectly, will disqualify. Applications giving full details of age, training, experience, and present salary should be sent within fourteen days of the appearance of this advertisement to the STAFF OFFICER (F/EV. 150), LONDON TRANSPORT EXECUTIVE, 55, Broadway, London, S.W.1. For acknowledgment enclose addressed envelope.
November 24, 1950

SITUATION VACANT. ENGINEERING ASSISTANT, Permanent Way Department, Central Railway, Peru. Salary from £1,000 per annum. Knowledge of Spanish essential. Apply to Secretary, THE PERUVIAN CORPORATION, LIMITED, 144, Leadenhall Street, London, E.C.3.

INTERNATIONAL RAILWAY ASSOCIATIONS. Notes on the work of the various associations concerned with International traffic, principally on the European Continent. 2s. By post 2s. 2d. *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

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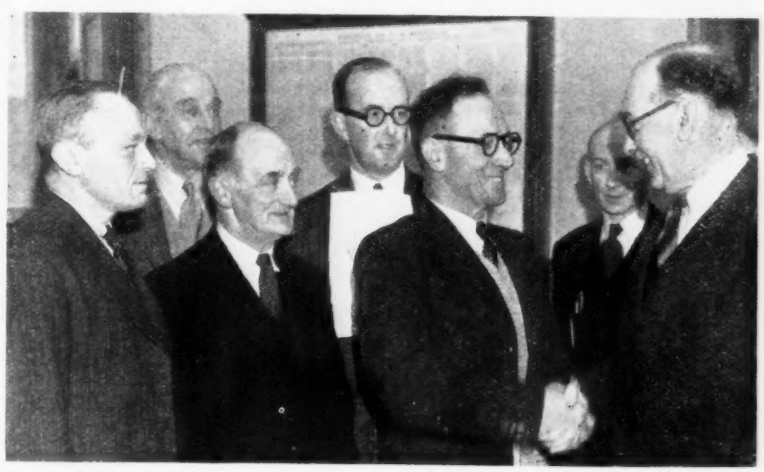
the loss of a member of the board in the death of Mr. R. Carpmael, late Chief Engineer, G.W.R., and the following relinquished their seats on the board: Messrs. S. H. Fisher, late Deputy Chief Regional Officer, L.M.R.; C. M. Jenkin Jones, late Divisional General Manager, L.N.E.R.; Brigadier L. F. S. Dawes, late Secretary, S.R.; Messrs. O. V. Bulleid, late Chief Mechanical Engineer, Southern Region; H. J. Comber, late Chief Officer for Labour & Establishment, L.M.R.; and G. L. Darbyshire, late Chief Regional Officer, L.M.R. A Royal Charter of Incorporation was granted to the Institution. All investments and property of the Institution having been transferred to the Institution, trustees will no longer be necessary, and the report places on record the board's appreciation of the services rendered by the three trustees, the Hon. Sir Edward C. G. Cadogan, Lord Aldenham, and Sir Ronald Matthews. The board emphasises that the Institution exists solely for the benefit of railway employees and their dependants in times of old age or adversity, and that having regard to changed conditions it becomes more than ever necessary for the railway service to support the Institution.

New Year's Day Casualty Fund.—The usual New Year's Day Collection in aid of the Railway Benevolent Institution will be made on Monday, January 1, 1951, at all railway stations in Great Britain and Ireland. The number of employees who became members of this year's Casualty Fund was 194,890 and assistance has been rendered to 75 widows of men killed, 507 widows of men dying from illness and 3,173 men accidentally injured, making a total of 3,755 cases relieved, or one in every 52 contributors.

Best Kept Permanent Way Lengths, North Eastern Region.—As an encouragement to keep the permanent way in first class condition, money prizes and certificates are awarded annually to the gangers, lengthmen, and patrolmen responsible for maintaining the track of British Railways. The York district, the awards for which were made by Mr. J. Taylor Thompson, Civil Engineer, North Eastern Region, on November 13, covers 1,273 miles of track, and is tended by 183 permanent way length gangs. Marks are given for longitudinal level, packing of sleepers, alignment, gauge, cross levels and cant, and for condition of joints, fastenings, points and crossings, ballast, drainage, and general neatness. As well as the prizes to actual length gangs a silver cup is awarded annually to the Permanent Way Inspector who gains the highest average marking per length on his section. A miniature of the cup becomes his own property.

Agents for Continental Machine Tools.—The firm of A. C. Wickman Limited, Coventry, has been appointed sole agents in Great Britain for the following Continental machine tool companies: Gebr. Heller G.m.b.H., Nurtingen, for cold sawing machines and foundry saws, saw blade sharpening machines, milling machines, drilling and boring machines, and hydraulic units; Klopp Solingen Wald, for mechanical and hydraulic shaping machines; Herlan & Company, Karlsruhe, A/Rhein, for cold impact extrusion presses and automatic trimming machines; Collet & Engelhard, Offenbach, A/Main, for horizontal boring machines and die sinking machines; Billeter Werkzeugmaschinen G.m.b.H., Bad-Homburg, for planing machines; Fritz Kopp, Ulm/Donau, for special milling and grinding machines, keyway and slot milling machines, and copy milling machines; Naxos Union, Frankfurt, for roll grinding machines, crankshaft and camshaft grinding machines, surface grinding machines, and internal grinding machines; Lorenz A-G, Ettlingen-Baden, for gear shaping machines and hobbing machines.

Keighley Machine Tool Firm Purchased.—Darling & Sellers Limited, Airedale Works, Keighley, has been taken over jointly by D. Mitchell & Co. Ltd., Central Ironworks, Keighley, and Rushworth & Company, Sowerby Bridge. The new directors are Mr. P. Leslie Crabtree, Mr. John W. Rushworth, Mr. C. Donald Rushworth, and Mr. Sidney Wilson. The firm of Darling & Sellers started almost a century ago when its products consisted of metal working machines of all types. In 1896, when D. Mitchell & Co. Ltd. became a limited



Mr. J. Taylor Thompson, Civil Engineer North Eastern Region, congratulating the ganger and two lengthmen of Halton Dial, Crossgates, Leeds, on winning the competition for the best maintained permanent way in the York District. Mr. H. R. Garth, Assistant Civil Engineer, and Mr. E. L. Triffit, District Engineer, York, are seen in the background (see accompanying paragraph

company, Darling & Sellers Limited was similarly registered. After completion of outstanding commitments Mitchell 10½ in. and 16½ in. centre lathes will be produced in still larger quantities to meet export and home needs. The firm of Morrison, Marshall & Hill, 44-45, Tower Hill, London, E.C.3, which for many years has acted as London office and export division for Mitchell and Rushworth, will now act in the same capacity for Darling & Sellers.

British Transport Police, Eastern Area.—Lt.-Colonel G. J. Shepherd, Chief of British Transport Police, Eastern Area, has now established his headquarters at Cherry Tree House, Oundle Road, Peterborough, Northants.

Forthcoming Meetings

December 11 (*Mon.*).—Institute of Metals, Scottish Local Section, at the Institution of Engineers & Shipbuilders in Scotland, 39, Elmbank Crescent, Glasgow, C.2, at 6.30 p.m. "Non-Ferrous Metals in the Locomotive Industry," by Mr. J. D. Glen.

December 13 (*Wed.*).—Institution of Locomotive Engineers, at the Institution of Mechanical Engineers, Storey's Gate, London, S.W.1, at 5.30 p.m. "Electric Traction Prospects for British Railways," by Mr. S. B. Warder, Chief Officer (Electrical Engineering), Railway Executive.

December 13 (*Wed.*).—Institute of Transport, in the Jarvis Hall (R.I.B.A.), 66, Portland Place, London, W.1, at 5.45 p.m. Henry Spurrier Memorial Lecture. "Inventions and Transport—the Inventor, the Operator, the Customer," by Mr. P. J. R. Tapp.

December 13 (*Wed.*).—Railway Students' Association, at the London School of Economics & Political Science, Houghton Street, Aldwych, London, W.C.2, at 6 p.m. "Signalling Headways on the Railways of London Transport," by Mr. R. Dell, Signal Engineer, London Transport Executive.

December 13 (*Wed.*).—Permanent Way Institution, London Section, at the Euston Dining Club, Cardington Street, Euston Station, at 6.30 p.m. "Railways in Prosperity," by Mr. W. A. Willox.

December 13 (*Wed.*).—Stephenson Locomotive Society, at 32, Russell Road, Kensington, London, W.14, at 6.45 p.m. "The Netherlands Railways," by Mr. E. J. Tyler.

December 14 (*Thu.*).—British Railways, Southern Region, Lecture & Debating Society and British Railways, Western Region, London Lecture & Debating Society, at the Headquarters Staff Dining Club, Bishop's Bridge Road, Paddington, at 5.45 p.m. Joint Debate: "That the standardisation of equipment and methods on the British Railways will secure greater efficiency and economy."

December 14 (*Thu.*).—Diesel Engine Users' Association, at Caxton Hall, Westminster, S.W.1, at 2.30 p.m. "Report on Heavy-Oil Engine Working Costs, 1948-49."

December 14 (*Thu.*).—Engineers' Guild, Metropolitan Branch, at Caxton Hall, Westminster, S.W.1, at 6 p.m. Film, "Atomic Physics."

December 14 (*Thu.*).—Irish Railway Record Society, Display of Railway Films.

December 15 (*Fri.*).—Carlisle & District Transport Club, Annual Dinner.

Railway Stock Market

After the setback in markets resulting from the turn of events in Korea, steadier conditions have developed in most sections, although the lower prices do not appear to be attracting many buyers. There is caution generally awaiting the outcome of the U.S.A. talks. With the re-armament drive growing it seems that there will have to be rationing of many essential materials for industry even if larger supplies of materials are made available by the U.S.A. Stockpiling and rearmament are causing world shortages of some materials and commodities which may persist during 1951.

Indications are that many more companies will require additional capital to finance the higher cost of stocks and in most cases it appears this will have to be raised in the form of prior charges or preference shares ranking in front of ordinary shareholders. Wherever possible it can be expected that new ordinary shares will be offered to shareholders, but this and public issues of ordinary shares are difficult to make, unless directors can confidently expect dividends to be maintained. With higher taxation in prospect, however, it is impossible to predict this with any confidence.

Foreign rails have remained rather more active, although movement, while small, were mostly against holders, and Leopoldina stocks came in for profit-taking after recent gains. Leopoldina ordinary eased further to 9, the preference stock to 23, and the 4 per cent. debentures to 88½, while the 6½ per cent. debentures were 130. Leopoldina Terminal debentures were 83 and the ordinary units 1s. 4¼d. There seem reasonable expectations that Leopoldina stockholders will receive their pay-out money early in 1951, and in the circumstances the various stocks may in due course attract a good deal more attention, because current prices are regarded as being well below probable pay-out levels. United of Havana stocks remained active, but fluctuated moderately; the 1906 debentures have changed hands around 16. Great Western of Brazil, at 115s. 1½d., have been well maintained and Brazil Rail gold bonds at 42½ eased slightly from 43.

Antofagasta ordinary and preference stocks at 6 and 41½ respectively have been well maintained. Bolivar "C" debentures were 59 and La Guaira ordinary stocks 78½. Manila "A" bonds at 69 reflected selling and the preference shares were lower at 6s. Nitrate Rails attracted a certain amount of attention and improved to 72s. 6d.

Taltal shares were 16s., French railway sterling bonds moved slightly lower and Midi and Orleans were both 90 and Seine 101. Canadian Pacifics remained active in common with other Canadian securities. Fears of war appear to have led to a certain amount of switching from sterling and other securities into dollars. Canadian Pacifics subsequently eased to 39¼ partly because it is being pointed out that there is little prospect of a higher dividend for the current year.

Road transport shares kept steady and were helped by satisfaction with the financial results that have recently come to hand. Southdown improved further to 120s., Lancashire Transport were 67s. 6d., and West Riding were 58s. British Electric Traction deferred stock remained active up to 490 partly on market dividend estimates.

There was little business passing in iron and steels although nationalisation steel shares were inclined to attract rather more attention as a safe refuge for money during the next few months. Between now and the issue of the steel nationalisation stock in February next, prices of steel shares are not expected to move much, but it is pointed out that the steel stock into which they will have to exchange will have to be issued on terms in line with the general position then ruling in the gilt-edged market. Steel nationalisation shares are therefore a promising indirect means of acquiring an interest in gilt-edged.

Among locomotive building and engineering shares, Vulcan Foundry were 24s., Beyer Peacock 23s. 3d., North British Locomotive 19s., and Wagon repairs 5s. shares 15s. 9d. Gloucester Wagon were 15s. 9d., and Birmingham Wagon 31s., while Hurst Nelson shares rose to 59s. 3d.

Traffic Table of Overseas and Foreign Railways

	Railway	Miles open	Week ended	Traffics for week: Total this year	Traffics for week: Inc. or dec. compared with 1948/49	No. of weeks	Aggregate traffics to date: Total 1949/50	Aggregate traffics to date: Increase or decrease
				£			£	£
South & Central America	Antofagasta ...	811	26.11.50	103,650	+ 17,680	47	3,178,774	+ 34,610
	Costa Rica ...	281	Sept., 1950	c926,567	+ c49,730	13	c3,345,871	+ c436,566
	Dorada	70	Oct., 1950	37,409	+ 5,561	43	391,233	+ 94,355
	Inter. Ctl. Amer. ...	794	Sept., 1950	$1,000,438	+ $70,814	39	$10,227,283	+ $696,390
	La Guaira	22¼	Sept., 1950	$6°,726	— $39,529	39	$725,535	— $241,943
	Nitrate	382	15.8.50	10,816	— 8,656	32	286,336	+ 6,203
	Paraguay Cent. ...	274	24.11.50	£236,462	+ £96,161	21	£4,130,989	+ £1,124,604
	Peru Corp. ...	1,050	Oct., 1950	$7,759,000	+ $1,731,632	18	$31,206,000	+ $10,689,542
	,, (Bolivian Section)	66	Oct., 1950	Bs.12,465,000	+ Bs.1,408,106	18	Bs.42,974,000	+ Bs.2,027,836
	Salvador	100	Aug., 1950	c88,000	+ c7,000	9	c193,000	+ c20,000
	Taltal	154	Oct., 1950	$1,321,604	— $286,820	18	$5,800,260	+ $1,232,416
Canada	Canadian National†	23,473	Oct., 1950	18,063,000	+ 2,947,000	43	150,250,000	+ 13,286,000
	Canadian Pacific† ...	17,037	Oct., 1950	12,247,000	+ 1,163,000	43	103,218,000	+ 2,895,000
Various	Barsi Light* ...	167	Sept., 1950	18,540	+ 652	26	177,870	— 1,515
	Egyptian Delta ...	607	10.10.50	18,245	+ 1,296	28	319,911	— 24,005
	Gold Coast ...	536	Sept., 1950	217,274	+ 11,248	27	1,387,568	— 10,950
	Mid. of W. Australia	277	Sept., 1950	38,775	+ 7,000	13	110,856	+ 29,381
	Nigeria	1,900	Jan., 1950	502,360	+ 38,978	44	5,017,814	+ 266,573
	South Africa ...	13,347	11.11.50	1,815,220	+ 263,151	32	53,475,560	+ 5,646,469
	Victoria	4,744	Aug., 1950	1,886,505	+ 666,194	9	—	—

* Receipts are calculated at 1s. 6d. to the rupee

† Calculated at $3 to £1